User Manual of LV-N99xx Series NVR

Regulatory information

FCC information

FCC compliance : This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

CE

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC.

2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Preventive and Cautionary Tips

Before connecting and operating your device, please be advised of the following tips:

- Ensure unit is installed in a well-ventilated, dust-free environment.
- Unit is designed for indoor use only.
- Keep all liquids away from the device.
- Ensure environmental conditions meet factory specifications.
- Ensure unit is properly secured to a rack or shelf. Major shocks or jolts to the unit as a result of dropping it may cause damage to the sensitive electronics within the unit.
- Use the device in conjunction with an UPS if possible.
- Power down the unit before connecting and disconnecting accessories and peripherals.
- A factory recommended HDD should be used for this device.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.

Product Key Features

General

- Connectable to network cameras, network dome and DVS.
- Connectable to the third-party network cameras like AXIS, ONVIF, PANASONIC, PSIA, SAMSUNG and SANYO.
- PAL/NTSC adaptive video inputs.
- Each channel supports dual-stream.
- 32 network cameras for LV-N9932xx, and 16 network cameras for LV-N9916xx.
- Independent configuration for each channel, including resolution, frame rate, bit rate, image quality, etc.
- The quality of the input and output record is configurable.

Local Monitoring

- Simultaneous HDMI, VGA and CVBS outputs.
- HDMI output and VGA output at up to 1920×1080 resolution.
- Multiple screen display in live view is supported, and the display sequence of channels is adjustable.
- Live view screen can be switched in group, and manual switch and automatic cycle live view are also provided, and the interval of automatic cycle can be adjusted.
- Quick setting menu is provided for live view.
- Motion detection, tamper-proof, video exception alert and video loss alert functions.
- Privacy mask.
- Multiple PTZ protocols supported; PTZ preset, patrol and pattern.
- Zooming in by clicking the mouse and PTZ tracing by dragging mouse.

HDD Management

- For LV-N99xx series, 4 SATA hard disks and 1 eSATA disk can be connected. And up to 8 SATA hard disks and 1 eSATA disk can be connected for other models. (Each disk with a maximum of 4TB storage capacity.)
- 8 network disks (8 NAS disks, or 7 NAS disks+1 IP SAN disk) can be connected.
- Support eSATA disks for recording or backup.
- Support S.M.A.R.T. and bad sector detection.
- HDD group management.
- Support HDD standby function.
- HDD property: redundancy, read-only, read/write (R/W).
- HDD quota management; different capacity can be assigned to different channel.

Recording, Capture and Playback

- Holiday recording schedule configuration.
- Normal and event video encoding parameters.
- Multiple recording types: manual, normal, alarm, motion, motion | alarm, motion & alarm.
- 8 recording time periods with separated recording types.
- Pre-record and post-record for alarm, motion detection for recording, and pre-record time for schedule and manual recording.
- Searching record files and captured pictures by events (alarm input/motion detection).
- Tag adding for record files, searching and playing back by tags.
- Locking and unlocking record files.

- Local redundant recording and capture.
- Provide new playback interface with easy and flexible operation.
- Searching and playing back record files by channel number, recording type, start time, end time, etc.
- Motion analysis for the selected area in the video.
- Zooming in when playback.
- Playing reversely.
- Reverse playback of multi-channel.
- Supports pause, play reverse, speed up, speed down, skip forward, and skip backward when playback, and locating by dragging the mouse.
- Up to 16-ch synchronous playback at 4CIF real time.
- Manual capture, continuous capture of video images and playback of captured pictures.

Backup

- Export video data by USB, SATA or eSATA device.
- Export video clips when playback.
- Management and maintenance of backup devices.

Alarm and Exception

- Configurable arming time of alarm input/output.
- Alarm for video loss, motion detection, tampering, abnormal signal, video input/output standard mismatch, illegal login, network disconnected, IP confliction, abnormal record/capture, HDD error, and HDD full, etc.
- Alarm triggers full screen monitoring, audio alarm, notifying surveillance center, sending email and alarm output.
- Automatic restore when system is abnormal.

Other Local Functions

- Operable by front panel, mouse, remote control, and control keyboard.
- Three-level user management; admin user is allowed to create many operating accounts and define their operating permission, which includes the limit to access any channel.
- Operation, alarm, exceptions and log recording and searching.
- Manually triggering and clearing alarms.
- Import and export of device configuration information.

Network Functions

- 8 independent PoE network interfaces are provided for LV-N99xxC8E series.16 independent PoE network interfaces are provided for LV-N99xxC6E series
- IPv6 is supported.
- TCP/IP protocol, PPPoE, DHCP, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, and iSCSI are supported.
- TCP, UDP and RTP for unicast.
- Auto/Manual port mapping by UPnP.
- Remote web browser access by HTTPS ensures high security.
- Remote reverse playback through RTSP.
- Support accessing by the platform via ONVIF.
- Remote search, playback, download, locking and unlocking of the record files, and support downloading files broken transfer resume.
- Remote parameters setup; remote import/export of device parameters.
- Remote viewing of the device status, system logs and alarm status.

- Remote keyboard operation.
- Remote locking and unlocking of control panel and mouse.
- Remote HDD formatting and program upgrading.
- Remote system restart and shutdown.
- RS-232, RS-485 transparent channel transmission.
- Alarm and exception information can be sent to the remote host
- Remotely start/stop recording.
- Remotely start/stop alarm output.
- Remote PTZ control.
- Remote JPEG capture.
- Two-way audio and voice broadcasting.
- Embedded WEB server.

Development Scalability:

- SDK for Windows and Linux system.
- Source code of application software for demo.
- Development support and training for application system.

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Chapter 1 Introduction

1.1 Front Panel

Figure 1. 1 LV-N99xx

Table 1. 1 Description of Control Panel Buttons

No.	Name		Function Description
1	Status Indicators	POWER	Turns green when NVR is powered up.
		READY	The indicator is green when the device is running normally.
		STATUS	The light is green when the IR remote control is enabled; The light is red when the function of the composite keys (SHIFT) are used; The light is out when none of the above condition is met.
		ALARM	The light is red when there is an alarm occurring.
		HDD	Blinks red when HDD is reading/writing.
		Tx/Rx	Blinks green when network connection is functioning normally.
2	DVD-R/W		Slot for DVD-R/W.
3	Control Buttons	DIRECTION	In menu mode, the direction buttons are used to navigate between different fields and items and select setting parameters.
			In playback mode, the Up and Down buttons are used to speed up and slow down record playing, and the Left and Right buttons are used to move the recording 30s forwards or backwards.
			In the image setting interface, the up and down button can adjust the level bar of the image parameters. In live view mode, these buttons can be used to switch channels.
		ENTER	The Enter button is used to confirm selection in menu mode; or used to check checkbox fields and ON/OFF switch.
			In playback mode, it can be used to play or pause the video.
			In single-frame play mode, pressing the Enter button will play the video by a single frame.
			In auto sequence view mode, the buttons can be used to pause or resume auto sequence.
4	Composite Keys	SHIFT	Switch between the numeric or letter input and functions of the composite keys. (Input letter or numbers when the light is out; Realize functions when the light is red.)
		1/MENU	Enter numeral “1”;

No.	Name		Function Description
			Access the main menu interface.
		2/ABC/F1	Enter numeral “2”;
			Enter letters “ABC”;
			The F1 button when used in a list field will select all items in the list.
			In PTZ Control mode, it will turn on/off PTZ light and when the image is zoomed in, the key is used to zoom out.
		3/DEF/F2	Enter numeral “3”;
			Enter letters “DEF”;
			The F2 button is used to change the tab pages.
			In PTZ control mode, it zooms in the image.
		4/GHI/ESC	Enter numeral “4”;
			Enter letters “GHI”;
			Exit and back to the previous menu.
		5/JKL/EDIT	Enter numeral “5”;
			Enter letters “JKL”;
			Delete characters before cursor;
			Check the checkbox and select the ON/OFF switch;
			Start/stop record clipping in playback.
		6/MNO/PLAY	Enter numeral “6”;
			Enter letters “MNO”;
			Playback, for direct access to playback interface.
		7/PQRS/REC	Enter numeral “7”;
			Enter letters “PQRS”;
			Open the manual record interface.
		8/TUV/PTZ	Enter numeral “8”;
			Enter letters “TUV”;
			Access PTZ control interface.
		9/WXYZ/PREV	Enter numeral “9”;
			Enter letters “WXYZ”;
			Multi-channel display in live view.
		0/A	Enter numeral “0”;
			Shift the input methods in the editing text field. (Upper and lowercase, alphabet, symbols or numeric input).
			Double press the button to switch the main and auxiliary output.
5	**JOG SHUTTLE Control**		Move the active selection in a menu. It will move the selection up and down.
			In Live View mode, it can be used to cycle through different channels.
			In the Playback mode, it can be used to jump 30s forward/backward in video files.
			In PTZ control mode, it can control the movement of the PTZ camera.
6	**POWER ON/OFF**		Power on/off switch.
7	**USB Interfaces**		Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).

1.2 IR Remote Control Operations

The NVR may also be controlled with the included IR remote control, shown in Figure 1. 2.

Note: Batteries (2×AAA) must be installed before operation.

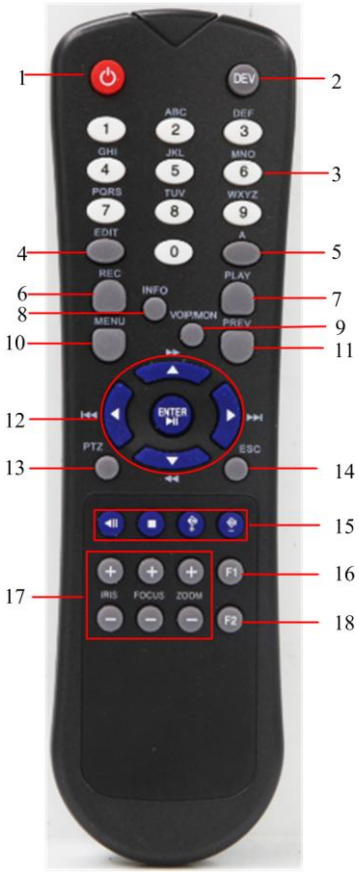


Figure 1. 2 Remote Control

The keys on the remote control closely resemble the ones on the front panel. See Table 1.5.

Table 1. 2 Description of the Soft Keyboard Icons

No.	Name	Description
1	**POWER**	Power on/off the device.
2	**DEV**	Enables/Disables Remote Control.
3	**Alphanumeric Buttons**	Same as Alphanumeric buttons on front panel.
4	**EDIT Button**	Same as EDIT/IRIS+ button on front panel.
5	**A Button**	Same as A/FOCUS+ button on front panel.
6	**REC Button**	Same as REC/SHOT button on front panel.
7	**PLAY Button**	Same as the PLAY/AUTO button on front panel.
8	**INFO Button**	Reserved.
9	**VOIP/MON Button**	Same as the MAIN/SPOT/ZOOM- button on front panel.
10	**MENU Button**	Same as the MENU/WIPER button on front panel.
11	**PREV Button**	Same as the PREV/FOCUS- button on front panel.
12	**DIRECTION/ENTER**	Same as the DIRECTION/ENTER buttons on front panel.

	Buttons	
13	**PTZ Button**	Same as the PTZ/IRIS- button on front panel.
14	**ESC Button**	Same as the ESC button on front panel.
15	**RESERVED**	Reserved for future usage.
16	**F1 Button**	Same as the F1/LIGHT button on front panel.
17	**PTZControl Buttons**	Buttons to adjust the iris, focus and zoom of a PTZ camera.
18	**F2 Button**	Same as the F2/AUX button on front panel.

Troubleshooting Remote Control:

Note: Make sure you have installed batteries properly in the remote control. And you have to aim the remote control at the IR receiver in the front panel.

If there is no response after you press any button on the remote, follow the procedure below to troubleshoot.

Steps:

1. Go to Menu > Settings > General > More Settings by operating the front control panel or the mouse.
2. Check and remember NVR ID#. The default ID# is 255. This ID# is valid for all the IR remote controls.
3. Press the DEV button on the remote control.
4. Enter the NVR ID# you set in step 2.
5. Press the ENTER button on the remote.

If the Status indicator on the front panel turns blue, the remote control is operating properly. If the Status indicator does not turn blue and there is still no response from the remote, please check the following:

1. Batteries are installed correctly and the polarities of the batteries are not reversed.
2. Batteries are fresh and not out of charge.
3. IR receiver is not obstructed.

If the remote still can’t function properly, please change a remote and try again, or contact the device provider.

1.3 USB Mouse Operation

A regular 3-button (Left/Right/Scroll-wheel) USB mouse can also be used with this NVR. To use a USB mouse:

1. Plug USB mouse into one of the USB interfaces on the front panel of the NVR.
2. The mouse should automatically be detected. If in a rare case that the mouse is not detected, the possible reason may be that the two devices are not compatible, please refer to the recommended the device list from your provider.

The operation of the mouse:

Table 1. 3 Description of the Mouse Control

Name	Action	Description
Left-Click	Single-Click	Live view: Select channel and show the quick set menu. Menu: Select and enter.
	Double-Click	Live view: Switch between single-screen and multi-screen.
	Click and Drag	PTZ control: pan, tilt and zoom. Tamper-proof, privacy mask and motion detection: Select target area. Digital zoom-in: Drag and select target area. Live view: Drag channel/time bar.
Right-Click	Single-Click	Live view: Show menu. Menu: Exit current menu to upper level menu.
Scroll-Wheel	Scrolling up	Live view: Previous screen. Menu: Previous item.
	Scrolling down	Live view: Next screen. Menu: Next item.

1.4 Input Method Description

Figure 1. 3 Soft Keyboard

Description of the buttons on the soft keyboard:

Table 1. 4 Description of the Soft Keyboard Icons

Icons	Description	Icons	Description
En	English	A	Capital English
123	Numbers	!+	Symbols
a	Lowercase/Uppercase	⌫	Backspace
␣	Space	Enter	Enter
ESC	Exit		

1.5 Rear Panel

Figure 1. 4 LV-N9916C8E / LV-N9932C8E

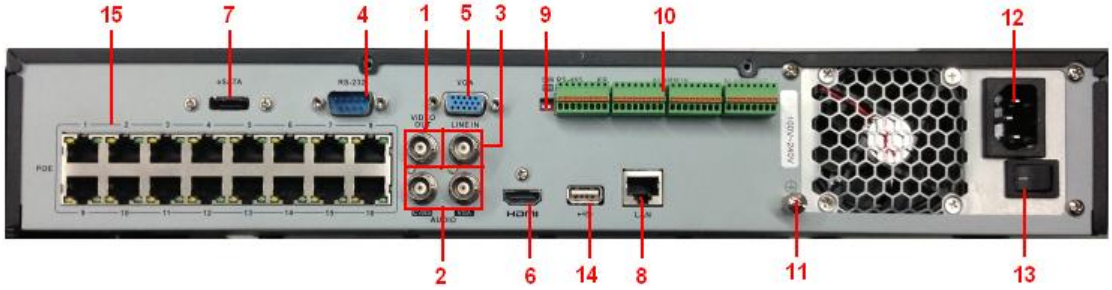


Figure 1. 5 LV-N9916C6E/ LV-N9932C6E

Table 1. 5 Description of Rear Panel Interfaces

No.	Item	Description
1	**VIDEO OUT**	BNC connector for video output.
2	**CVBS AUDIO OUT**	BNC connector for audio output. This connector is synchronized with CVBS video output.
	VGA AUDIO OUT	BNC connector for audio output. This connector is synchronized with VGA video output.
3	**LINE IN**	BNC connector for audio input.
4	**RS-232 Interface**	Connector for RS-232 devices.
5	**VGA**	DB9 connector for VGA output. Display local video output and menu.
6	**HDMI**	HDMI video output connector.
7	**eSATA (Optional)**	Connects external SATA HDD, CD/DVD-RM.
8	**LAN Interface**	Connector for LAN (Local Area Network).
9	**Termination Switch**	RS-485 termination switch. Up position shows the RS-485 is not terminated. Down position shows the RS-485 is terminated with 120Ω resistance.
10	**RS-485 Interface**	Connector for RS-485 devices. T+ and T- pins connects to R+ and R- pins of PTZ receiver respectively.
	Controller Port	D+, D- pin connects to Ta, Tb pin of controller. For cascading devices, the first NVR's D+, D- pin should be connected with the D+, D- pin of the next NVR.
	ALARM IN	Connector for alarm input.
	ALARM OUT	Connector for alarm output.
11	**GROUND**	Ground (needs to be connected when NVR starts up).
12	**AC 100V ~ 240V**	AC 100V ~ 240V power supply.
13	**POWER**	Switch for turning on/off the device.

14	**USB interface**	Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
15	**Network Interfaces with PoE function**	Network interface for the cameras and to provide power over Ethernet.

Chapter 2 Getting Started

2.1 Starting Up and Shutting Down the NVR

Purpose:

Proper startup and shutdown procedures are crucial to expanding the life of the NVR.

Before you start:

Check that the voltage of the extra power supply is the same with the NVR's requirement, and the ground connection is working properly.

Starting up the NVR:

Steps:

1. Check the power supply is plugged into an electrical outlet. It is HIGHLY recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the device. The Power indicator LED on the front panel should be red, indicating the device gets the power supply.
2. Press the **POWER** button on the front panel. The Power indicator LED should turn blue indicating that the unit begins to start up.
3. After startup, the Power indicator LED remains blue. A splash screen with the status of the HDD appears on the monitor. The row of icons at the bottom of the screen shows the HDD status. 'X' means that the HDD is not installed or cannot be detected.

Shutting down the NVR

Steps:

There are two proper ways to shut down the NVR. To shut down the NVR:

• OPTION 1: Standard shutdown

1. Enter the Shutdown menu.

   Menu > Shutdown

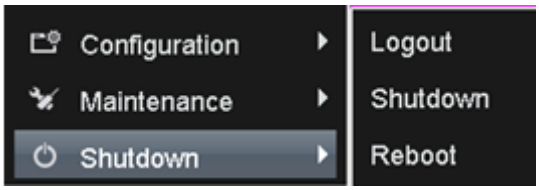


Figure 2. 1 Shutdown Menu

2. Click the **Shutdown** button.
3. Click the **Yes** button.

• OPTION 2: By operating the front panel

1. Press and hold the POWER button on the front panel for 3 seconds.
2. Enter the administrator's username and password in the dialog box for authentication.
3. Click the **Yes** button.

Note: Do not press the POWER button again when the system is shutting down.

Rebooting the NVR

In the Shutdown menu, you can also reboot the NVR.

Steps:

1. Enter the **Shutdown** menu by clicking Menu > Shutdown.
2. Click the **Logout** button to lock the NVR or the **Reboot** button to reboot the NVR.

2.2 Using the Wizard for basic configuration

By default, the Setup Wizard starts once the NVR has loaded, as shown in Figure 2. 2.

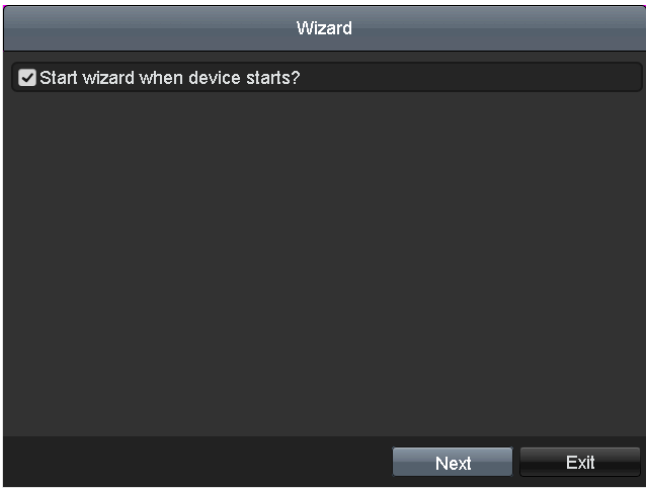


Figure 2. 2 Start Wizard Interface

Operating the Setup Wizard:

1. The Setup Wizard can walk you through some important settings of the NVR. If you don't want to use the Setup Wizard at that moment, click the **Cancel** button. You can also choose to use the Setup Wizard next time by leaving the "Start wizard when the device starts?" checkbox checked.
2. Click **Next** button on the Wizard window to enter the **Login** window, as shown in Figure 2. 3.

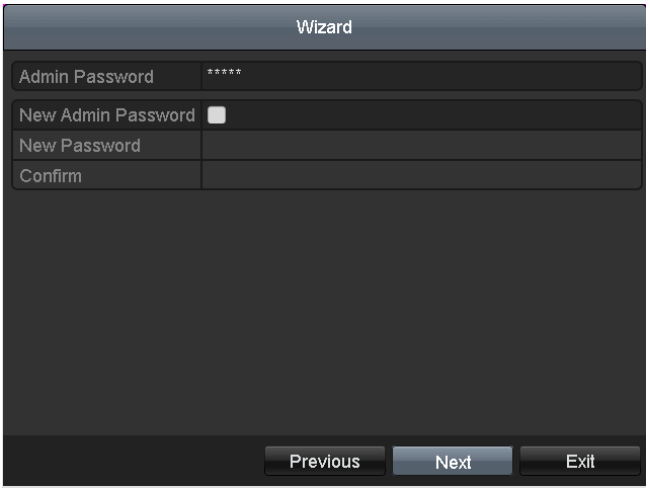


Figure 2. 3 Login Window

3. Enter the admin password. By default, the password is 12345.
4. To change the admin password, check the **New Admin Password** checkbox. Enter the new password and confirm the password in the given fields.
5. Click the **Next** button to enter the date and time settings window, as shown in Figure 2. 4.

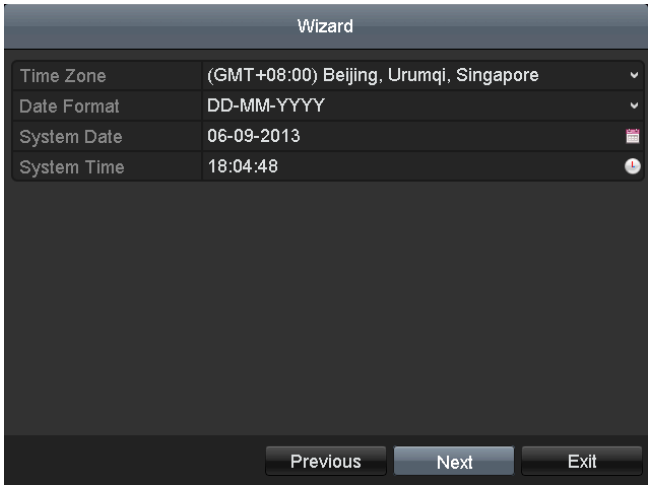


Figure 2. 4 Date and Time Settings

6. After the time settings, click **Next** button which takes you back to the Network Setup Wizard window, as shown in Figure 2. 5.

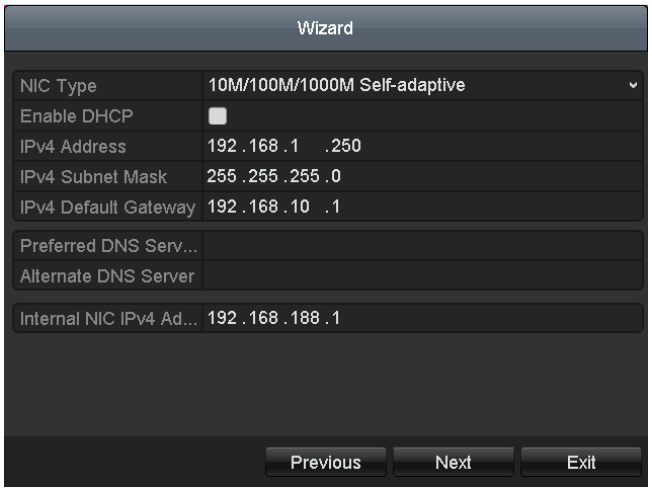


Figure 2. 5 Network Configuration

Note: For LV-N99xx series NVR, the internal NIC IPv4 address should be configured for the cameras connecting to the PoE network interface of the NVR.

7. Click **Next** button after you configured the network parameters, which takes you to the **HDD Management** window, shown in Figure 2. 6.

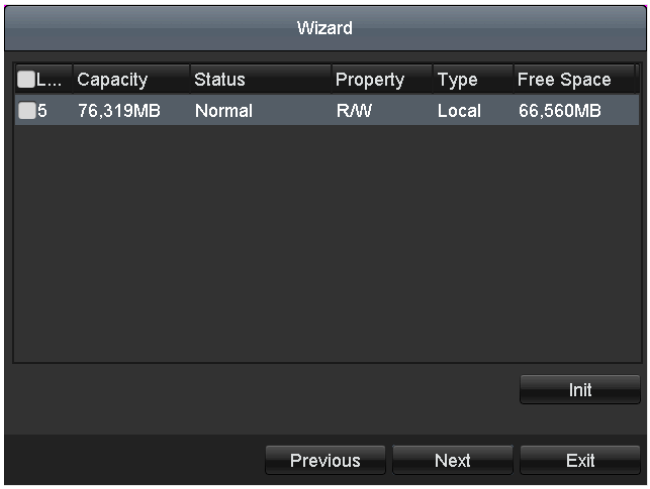


Figure 2. 6 HDD Management

8. To initialize the HDD, click the **Init** button. Initialization removes all the data saved in the HDD.
9. Click **Next** button. You enter the **Adding IP Camera** interface.
10. Click **Search** to find online IP Camera. Select the IP camera to be added, and click the **Add** button.

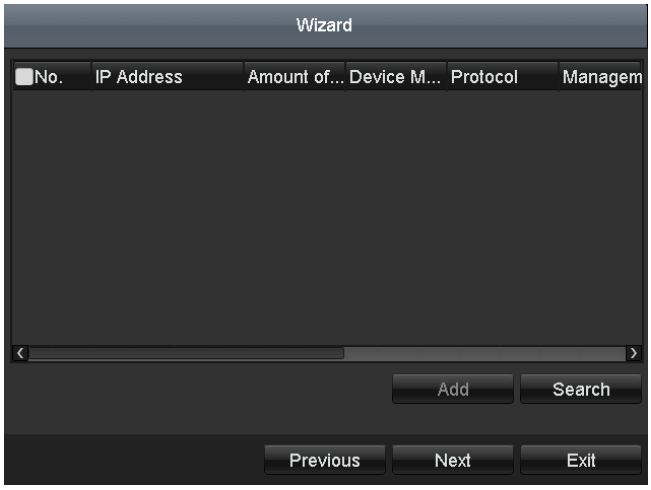


Figure 2. 7 Search for IP Cameras

11. Click **Next** button. Configure the recording for the searched IP Cameras.

Figure 2. 8 Record Settings

12. Click **Copy** to copy the settings to other channels, as shown in Figure 2. 9.

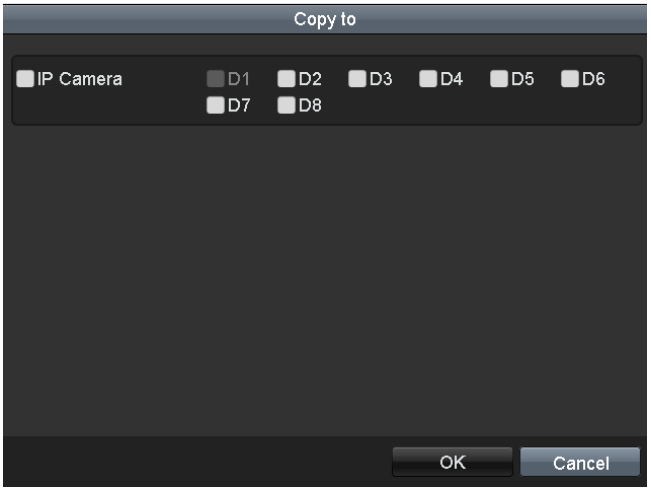


Figure 2. 9 Copy Record Settings

13. Click **OK** to complete the startup Setup Wizard.

2.3 Adding and Connecting the IP Cameras

2.3.1 Adding the online IP Cameras

Purpose:

The main function of the NVR is to connect the network cameras and record the video got from it. So before you can get a live view or record of the video, you should add the network cameras to the connection list of the device.

Before you start:

Ensure the network connection is valid and correct. For detailed checking and configuring of the network, please see *Chapter Checking Network Traffic* and *Chapter Configuring Network Detection*.

Option 1:

Steps:

1. Right-click the mouse when you in the live view mode to show the right-click menu.

2. Select (Auto**)** or (Manual) on your demand.

- **Auto**

The device will add the detected IP cameras or encoders automatically by the default user name and password of administrator.

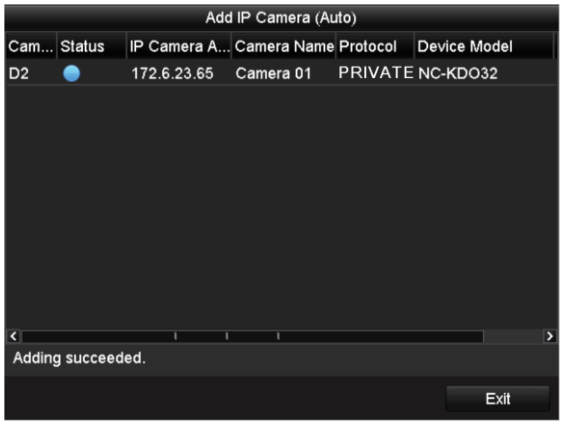

Add IP Camera (Auto)
Cam... Status IP Camera A... Camera Name Protocol Device Model
D2 172.6.23.65 Camera 01 PRIVATE NC-KDO32
Adding succeeded.
Exit

Figure 2. 11 Auto Adding IP Camera Interface

Note: If the user name and password are changed, the auto adding of IP camera will fail, you may add it manually.

- **Manual**

Steps:

1. To add the online cameras with same network segment:
   1) The detected online camera will be listed in the camera list, as shown in the figure below.

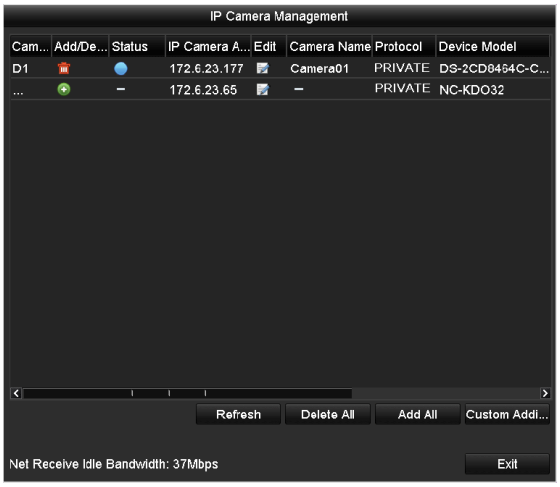


Figure 2. 12 Manual Adding IP Camera Interface

2) Click the button to add the camera.

Table 2. 1 Explanation of the icons:

Icon	Explanation	Icon	Explanation
	Edit basic parameters of the camera		Add the detected IP camera.
	Delete the IP camera		The camera is disconnected; you can click the icon to get the exception information of camera.
	The camera is connected.		Advanced settings of the camera.

2. To add other IP cameras:

1) Click the **Custom Adding** button to pop up the Add IP Camera (Custom) interface.

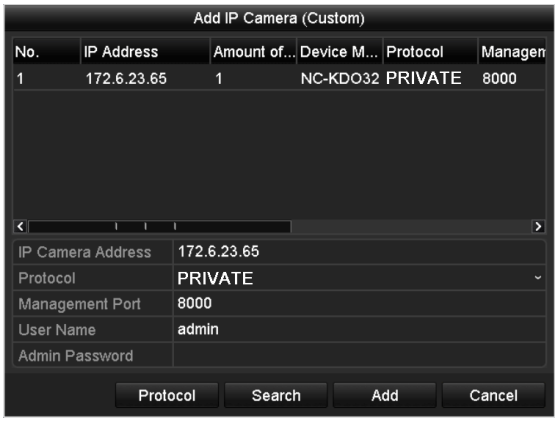


Figure 2. 13 Custom Adding IP Camera Interface

2) You can edit the IP address, protocol, management port, and other information of the IP camera to be added.

3) Click **Add** to add the camera.

Option 2:

Steps:

1. Enter the Camera Management interface.

Menu> Camera> Camera

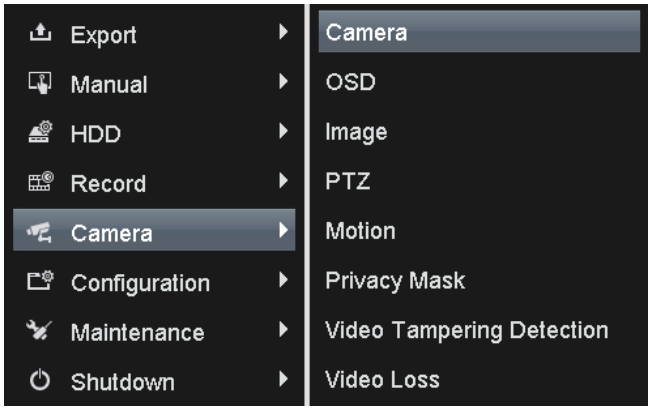


Figure 2. 14 Menu

2. To add the online cameras with same network segment:

1) Click **Search** to search the online cameras.

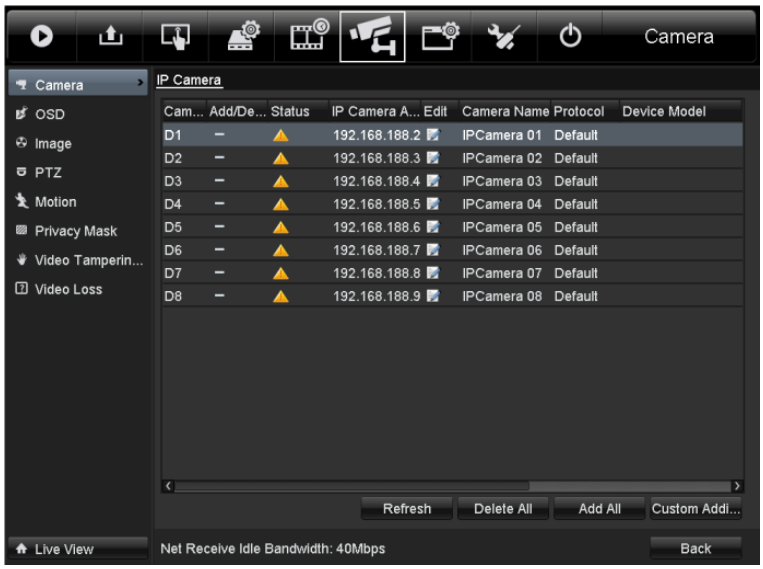


Figure 2. 15 Camera Settings Interface

2) Check the checkbox of certain cameras to be added.

3) Click **Quick Add** to add the camera.

3. To add other IP cameras:

1) On the left side of the interface, you can enter the IP address, protocol, management port, user name, password and other information of the IP camera to be added.

2) Click **Add** to add the camera.

Note: If you check the Synchronize IP Camera checkbox, the default settings of the NVR for the IP camera is applied to the added camera.

2.3.2 Editing the connected IP cameras and Configuring Customized Protocols

Editing the connected IP cameras

After the adding of the IP cameras, the basic information of the camera lists in the page, you can configure the basic setting of the IP cameras.

Steps:

1. Click the icon to edit the parameters; you can edit the network information, IP address, protocol and the password of the camera.

Figure 2. 16 Edit the Parameters

2. Click **apply** to save the settings and click **OK** to exit the editing interface.

Explanation of the icons

Refresh	Delete All	Add All
Get the latest status of the IP cameras.	Delete all the IP cameras.	Add all the detected IP cameras.

Configuring the customized protocols

Purpose: To connect the network cameras which are not configured with the standard protocols, you can configure the customized protocols for them.

Steps:

1. Click Custom Addi... and then click Protocol button to enter the protocol management interface.

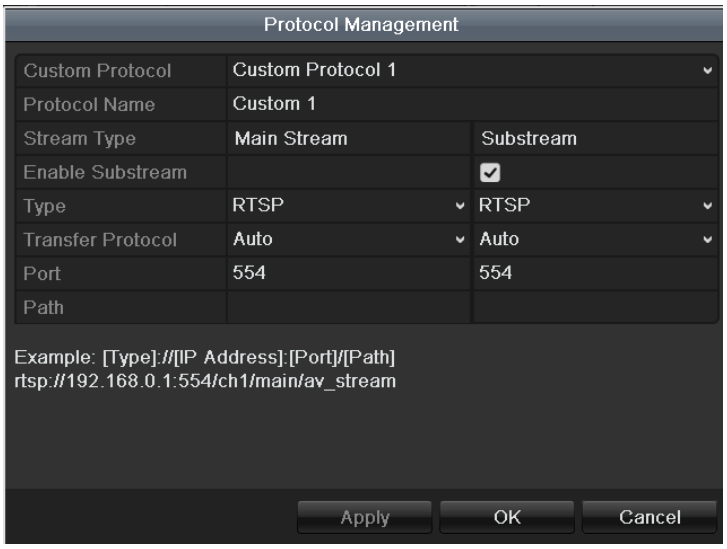


Figure 2. 17 Protocol Management Interface

2. There are 16 customized protocols provided in the system, you can select one and configure its corresponding parameters.

Note: Before customizing the protocol for the network camera, you have to contact the manufacturer of the network camera to consult the URL (uniform resource locator) for getting main stream and sub-stream.

Example: The format of the URL is: [Type]://[IP Address of the network camera]:[Port]/[Path]. E.g., rtsp://192.168.1.55:554/ch1/main/av_stream.

- **Protocol Name:** Edit the name for the custom protocol.
- **Enable Substream:** If the network camera does not support sub-stream or the sub-stream is not needed, leave the checkbox empty.
- **Type:** The network camera adopting custom protocol must support getting stream through standard RTSP.
- **Transfer Protocol:** Select the transfer protocol for the custom protocol.
- **Port:** Set the port No. for the custom protocol.
- **Path:** Set the resource path for the custom protocol. E.g., ch1/main/av_stream.

3. Click the **Apply** button to save the settings and click **OK** to finishing customizing the protocol.After adding the customized protocols, you can see the protocol name is listed in the dropdown list, please refer to Figure 2. 18.

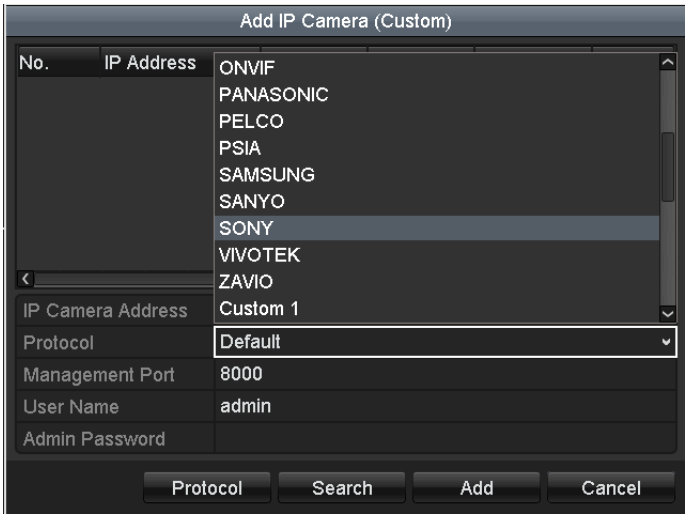


Figure 2. 18 Configure Custom Protocol

4. Select the custom protocol and enter the IP address, user name and password of the camera.
5. Click the **Add** button to add the network camera.

2.3.3 Editing IP cameras connected to the PoE interfaces

The PoE interfaces enables the NVR system to pass electrical power safely, along with data, on Ethernet cabling to the connected network cameras.

The LV-N9916C8E / LV-N9932C8E series NVR provides 8 PoE interfaces which can connect to 8 network cameras directly; and if you disable the PoE interface, you can also connect to the online network cameras. And the PoE interface supports the Plug-and-Play function.

Example:

As for LV-N9916C8E / LV-N9932C8E NVR, when you want to connect 2 online cameras and connect 6 network cameras via PoE interfaces, you must disable 2 PoE interfaces in the Edit IP Camera menu.

To add Cameras for NVR supporting PoE function:

Before you start:

Connect the network cameras via the PoE interfaces.

Steps:

1. Enter the Camera Management interface.

   Main menu> Camera> Camera

   You can see the connected cameras are listed.

Figure 2. 19 List of Connected Cameras

Note: The cameras connecting to the PoE interface cannot be deleted in this menu.

2. Click the **Edit** button, and select the Adding Method in the drop-down list.
   - **Plug-and-Play:** It means that the camera is connected to the PoE interface, so in this case, the parameters of the camera can't be edited. The IP address of the camera can only be edited in the Network Configuration interface, see *Chapter 9.1 Configuring General Settings* for detailed information.

Figure 2. 20 Edit IP Camera Interface - Plug-and-Play

- **Manual:** You can disable the PoE interface by selecting the manual while the current channel can be used as a normal channel and the parameters can also be edited.

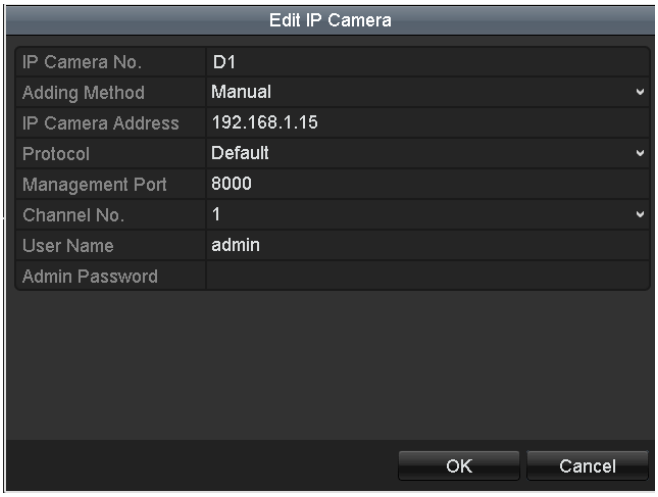


Figure 2. 21 Edit IP Camera Interface - Manual

Chapter 3 Live View

3.1 Introduction of Live View

Live view shows you the video image getting from each camera in real time. The NVR automatically enters Live View mode when powered on. It is also at the very top of the menu hierarchy, thus pressing the ESC many times (depending on which menu you're on) brings you to the Live View mode.

Live View Icons

In the live view mode, there are icons at the right top of the screen for each channel, showing the status of the record and alarm in the channel, so that you can know whether the channel is recorded, or whether there are alarms occur as soon as possible.

Table 3. 1 Description of Live View Icons

Icons	Description
	Alarm (video loss, tampering, motion detection or sensor alarm)
	Record (manual record, schedule record, motion detection or alarm triggered record)
	Alarm & Record

3.2 Operations in Live View Mode

In live view mode, there are many functions provided. The functions are listed below.

- **Single Screen**: showing only one screen on the monitor.
- **Multi-screen:** showing multiple screens on the monitor simultaneously.
- **Auto-switch:** the screen is auto switched to the next one. And you must set the dwell time for each screen on the configuration menu before enabling the auto-switch.
  Menu>Configuration>Live View>Dwell Time.
- **Start Recording:** normal record and motion detection record are supported.
- **Output Mode:** select the output mode to Standard, Bright, Gentle or Vivid.
- **Playback:** playback the recorded videos for current day.
- **Aux/Main output switch:** the NVR checks the connection of the output interfaces to define the main and auxiliary output interfaces. The priority level for the main and aux output is HDMI>VGA>CVBS. This means if the HDMI is used, it will be the main output. If the HDMI is not used, the VGA output will be the main output. See the table below.

Table 3. 2 Priorities of Interfaces

	HDMI	VGA	CVBS	Main output	Auxiliary output
1	√	√	√	HDMI	VGA
2	√	×	√	HDMI	CVBS
3	×	√	√	VGA	CVBS
4	×	×	√	CVBS	

- √ means the interface is in use, × means the interface is out of use or the connection is invalid. And the HDMI, VGA and CVBScan be used at the same time.

When the aux output is enabled, the main output can't do any operation, and you can do some basic operation on the live view mode for the Aux output.

3.2.1 Front Panel Operation on Live View

Table 3. 3 Front Panel Operation in Live View

Functions	**Front Panel Operation**
Show single screen	Press the corresponding Alphanumeric button. E.g. Press 2 to display only the screen for channel 2.
Show multi-screen	Press the **PREV/FOCUS-** button.
Manually switch screens	Next screen: right/down direction button. Previous screen: left/up direction button.
Auto-switch	Press **Enter** button.
Playback	Press **Play** button.
Switch between main and aux output	Press **Main/Aux** button.

3.2.2 Using the Mouse in Live View

Table 3. 4 Mouse Operation in Live View

Name	Description
Menu	Enter the menu of the system by clicking the icon.
	Switch to the single full screen.
	Adjust the screen layout by clicking the specific icon.
/	Switch to the previous/next screen.
/	Enable/disable the auto-switch of the screens.
/	Start continuous recording or motion detection recording of all channels.
	Enter the playback interface and start playing back the video of the selected channel immediately.
	Four modes of output supported, including Standard, Bright, Gentle and Vivid.
/	Fix the menu

Note: The *dwell time* of the live view configuration must be set before using **Start Auto-switch**.

Note: If you enter Aux monitor mode and the Aux monitor is not connected, the mouse operation is disabled; you need to switch back to the Main output with the MAIN/AUX button on the front panel or remote.

Note: If the corresponding camera supports intelligent function, the Reboot Intelligence option is included when right-clicking mouse on this camera.

Figure 3. 1 Right-click Menu

3.2.3 Using an Auxiliary Monitor

Certain features of the Live View are also available while in an Aux monitor. These features include:

- **Single Screen:** Switch to a full screen display of the selected camera. Camera can be selected from a dropdown list.
- **Multi-screen:** Switch between different display layout options. Layout options can be selected from a dropdown list.
- **Next Screen:** When displaying less than the maximum number of cameras in Live View, clicking this feature will switch to the next set of displays.
- **Playback:** Enter into Playback mode.
- **PTZ:** Enter PTZ Control mode.
- **Main Monitor:** Enter Main operation mode.

Note: In the live view mode of the main output monitor, the menu operation is not available while Aux output mode is enabled.

3.2.4 Quick Setting Toolbar in Live View Mode

On the screen of each channel, there is a quick setting toolbar which shows when you single click the mouse in the corresponding screen.

Figure 3. 2 Quick Setting Toolbar

Table 3. 5 Description of Quick Setting Toolbar Icons

Icons	Description	Icons	Description	Icons	Description
	Enable/Disable Manual Record		Instant Playback		Mute/Audio on
	Capture		PTZ Control		Digital Zoom
	Image Settings		Live View Strategy		Fresh
	Close		Text Show		

Instant Playback only shows the record in last five minutes. If no record is found, it means there is no record during the last five minutes.

Digital Zoom can zoom in the selected area to the full screen. You can left-click and draw to select the area to zoom in, as shown in Figure 3. 3.

Figure 3. 3 Digital Zoom

Image Settings icon can be selected to enter the Image Settings menu.

Figure 3. 4 Image Settings- Preset

You can also choose the **Customize** mode to set the image parameters like brightness, contrast, saturation and hue.

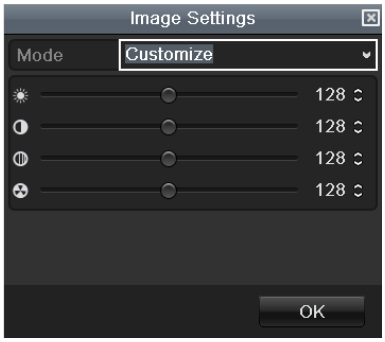


Figure 3. 5 Image Settings- Customize

Live View Strategy can be selected to set strategy, including Real-time, Balanced, Fluency.

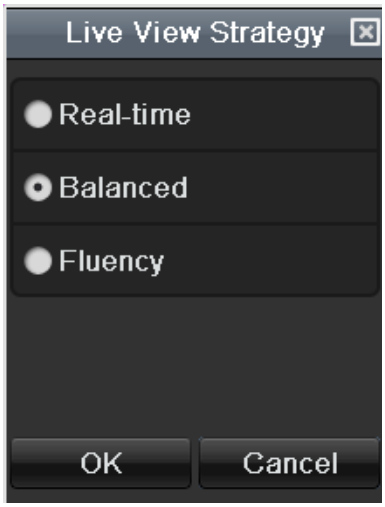


Figure 3. 6 Live View Strategy

3.3 Adjusting Live View Settings

Purpose:

Live View settings can be customized according to different needs. You can configure the output interface, dwell time for screen to be shown, mute or turning on the audio, the screen number for each channel, etc.

Steps:

1. Enter the Live View Settings interface.

   Menu> Configuration> Live View

Figure 3. 7 Live View-General

The settings available in this menu include:

- **Video Output Interface:** Designates the output to configure the settings for. Outputs include HDMI (depends on the model), VGA, Main CVBS and Spot Output.

- **Live View Mode:** Designates the display mode to be used for Live View.
- **Dwell Time:** The time in seconds to *dwell* between switching of channels when enabling auto-switch in Live View.
- **Enable Audio Output:** Enables/disables audio output for the selected video output.
- **Event Output:** Designates the output to show event video.
- **Full Screen Monitoring Dwell Time:** The time in seconds to show alarm event screen.

2. Setting Cameras Order

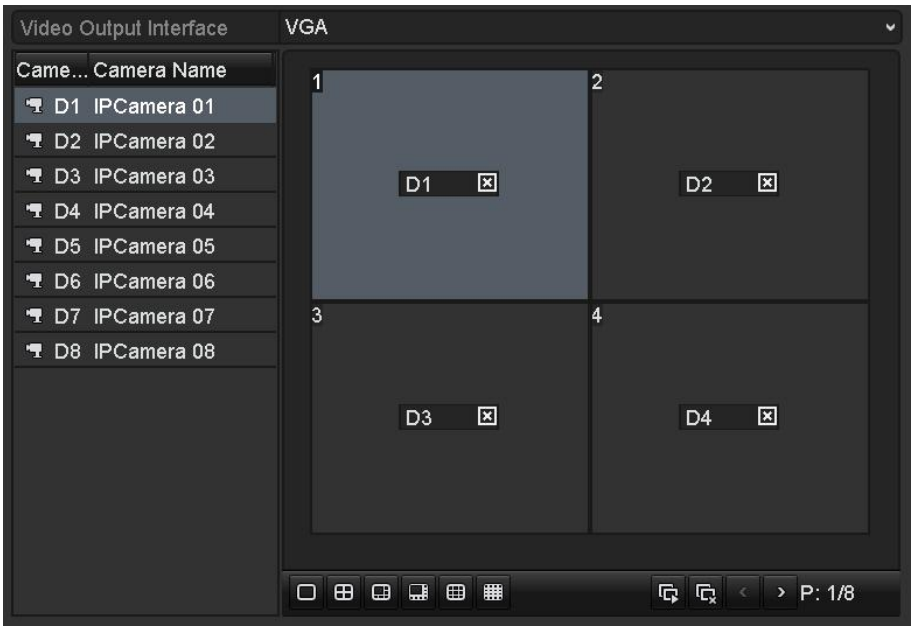
3. 

Figure 3. 8 Live View- Camera Order

To set the camera order:

1) Select a **View** mode in .

2) Select the small window, and double-click on the channel number to display the channel on the window.

You can click button to start live view for all the channels and click to stop all the live view.

3) Click the **Apply** button to save the setting.

3.4 Channel-zero Encoding

Purpose:

Sometimes you need to get a remote view of many channels in real time from web browser or CMS(Client Management System) software, in order to decrease the bandwidth requirement without affecting the image quality, channel-zero encoding is supported as an option for you.

Steps:

1. Enter the **Live View** Settings interface.

   Menu> Configuration> Live View

2. Select the **Channel-Zero Encoding** tab.

Figure 3. 9 Live View- Channel-Zero Encoding

3. Check the checkbox after **Enable Channel Zero Encoding.**
4. Configure the Frame Rate, Max. Bitrate Mode and Max. Bitrate.

After you set the Channel-Zero encoding, you can get a view in the remote client or IE browser of all the channels in one screen.

3.5 User Logout

Purpose:

After logging out, the monitor turns to the live view mode and if you want to do some operation, you need to enter user name and password tog in again.

Steps:

1. Enter the Shutdown menu.

   Menu>Shutdown

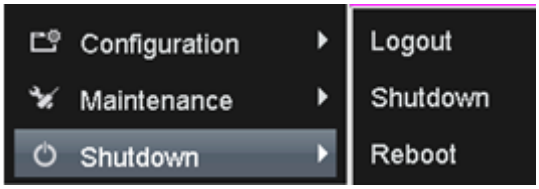


Figure 3. 10 Shutdown

2. Click **Logout**.

Note: After you have logged out the system, menu operation on the screen is invalid. It is required to input a user name and password to unlock the system.

Chapter 4 PTZ Controls

4.1 Configuring PTZ Settings

Purpose:

Follow the procedure to set the parameters for PTZ. The configuring of the PTZ parameters should be done before you control the PTZ camera.

Before you start:

Check that the PTZ and the NVR are connected properly through RS-485 interface.

Steps:

1. Enter the PTZ Settings interface.

   Menu >Camera> PTZ

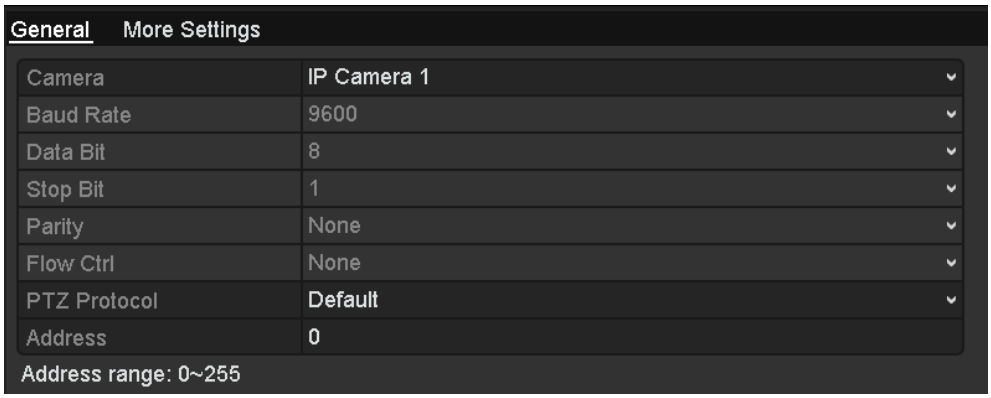


Figure 4. 1 PTZ- General

2. Choose the camera for PTZ setting in the **Camera** dropdown list.
3. Enter the parameters of the PTZ camera.

   Note: All the parameters should be exactly the same as the PTZ camera parameters.
4. Click **Apply** button to save the settings.

4.2 Setting PTZ Presets, Patrols & Patterns

Before you start:

Please make sure that the presets, patrols and patterns should be supported by PTZ protocols.

4.2.1 Customizing Presets

Purpose:

Follow the steps to set the Preset location which you want the PTZ camera to point to when an event takes place.

Steps:

1. Enter the PTZ Control interface.

   Menu>Camera>PTZ>More Settings

Figure 4. 2 PTZ- More Settings

2. Use the directional button to wheel the camera to the location where you want to set preset.
3. Click the round icon before **Save Preset**.
4. Click the preset number to save the preset.

Repeat the steps2-4 to save more presets. If the number of the presets you want to save is more than 17, you can click […] and choose the available numbers.

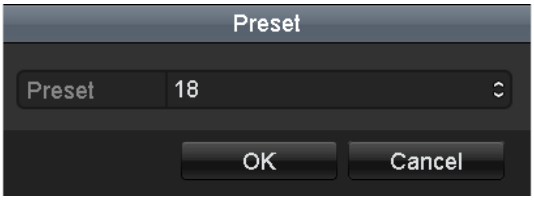


Figure 4. 3 More Presets

4.2.2 Calling Presets

Purpose:

This feature enables the camera to point to a specified position such as a window when an event takes place.

Call preset in the PTZ setting interface:

Steps:

1. Enter the PTZ Control interface.

   Menu>Camera>PTZ>More Settings

2. Check the round icon of **Call Preset**.

Figure 4. 4 PTZ- Call Preset

3. Choose the preset number.

Call preset in live view mode:

Steps:

1. Press the PTZ button on the front panel or click the PTZ Control icon in the quick setting bar to enter the PTZ setting menu in live view mode.

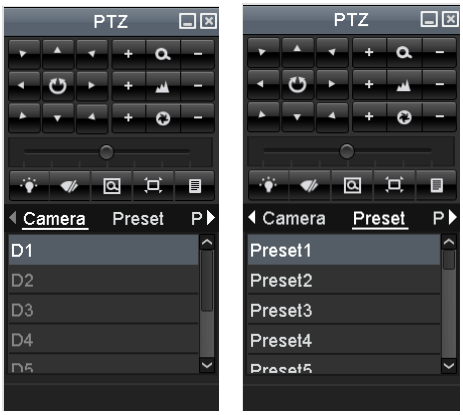


Figure 4. 5 PTZ Panel

2. Choose C**amera** in the list on the menu.

3. Double click the preset in the **Preset** list to call it.

4.2.3 Customizing Patrols

Purpose:

Patrols can be set to move the PTZ to different key points and have it stay there for a set duration before moving on to the next key point. The key points are corresponding to the presets. The presets can be set following the steps above in ***Customizing Presets***.

Steps:

1. Enter the PTZ Control interface.
   Menu>Camera>PTZ>More Settings
2. Select patrol number in the drop-down list of patrol.
3. Select the under Patrol option box to add key points for the patrol.

Figure 4. 6 PTZ- Add Key Point

4. Configure key point parameters, such as the key point No., duration of staying for one key point and speed of patrol. The key point is corresponding to the preset. The **Key Point No.** determines the order at which the PTZ will follow while cycling through the patrol. The **Duration** refers to the time span to stay at the corresponding key point. The **Speed** defines the speed at which the PTZ will move from one key point to the next.

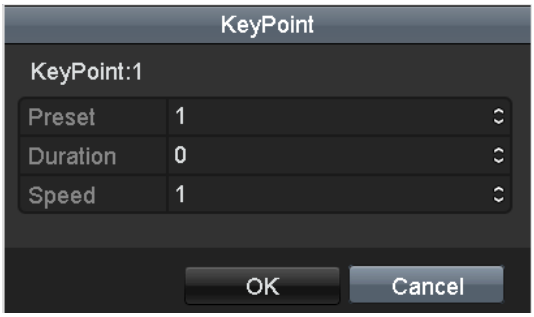


Figure 4. 7 Key point Configuration

5. Click **OK** to save the key point to the patrol.

Repeat the above steps to add more key points.

You can also delete all the key points by clicking the trash icon .

Select a key point, then click or button to adjust the order of the key points.

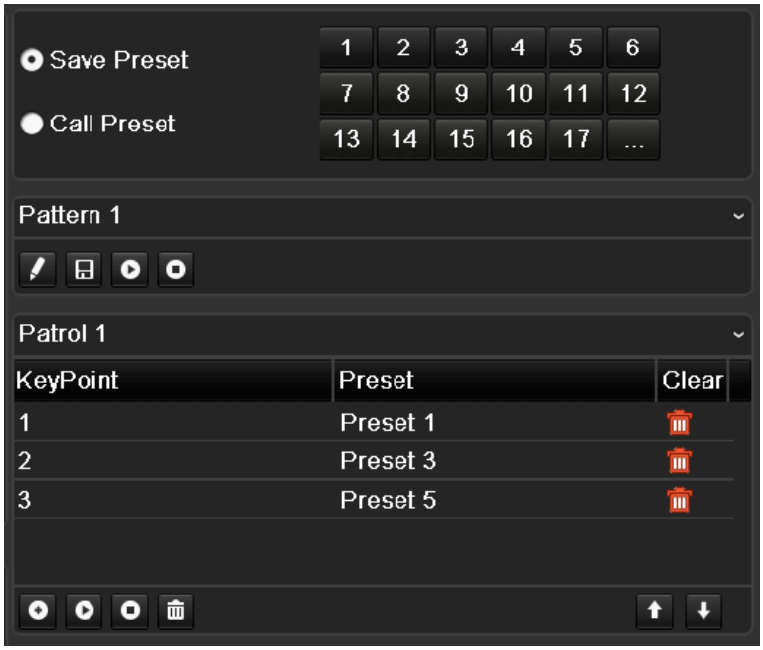


Figure 4. 8 KeyPoints Deletion

4.2.4 Calling Patrols

Purpose:

Calling a patrol makes the PTZ to move according the predefined patrol path.

Calling patrol in the PTZ setting interface:

Steps:

1. In the PTZ setting interface.

   Menu> Camera> PTZ> More Settings

2. Select the patrol number, and then click to call the patrol.
3. Click to stop it.

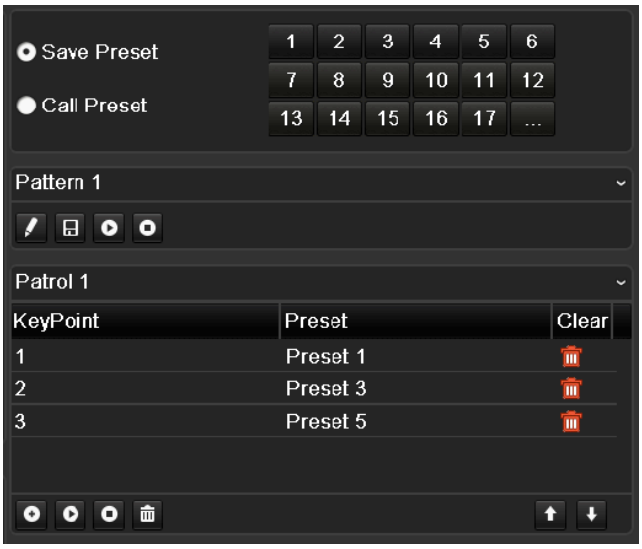


Figure 4. 9 Calling Patrol

Calling patrol in live view mode:

Steps:

1. Press PTZ control on the front panel or on the remote, or click PTZ Control icon on the quick setting panel, to show the PTZ control panel.
2. Choose **Patrol** on the control bar.
3. Double click the patrol or select the patrol and click to call it.

Figure 4. 10 PTZ Panel- Patrol

4.2.5 Customizing Patterns

Purpose:

Patterns can be set by recording the movement of the PTZ. You can call the pattern to make the PTZ movement according to the predefined path.

Steps:

1. Enter the PTZ Control interface.

Menu>Camera>PTZ>More Settings

2. Choose pattern number in the option box.

Figure 4. 11 PTZ- Pattern

3. Click and use your mouse to drag the image or click the eight directional buttons in the control box under the image to move the PTZ camera.

   The movement of the PTZ is recorded as the pattern.

4. Click to save the pattern.

4.2.6 Calling Patterns

Purpose:

Follow the procedure to move the PTZ camera according to the predefined patterns.

Calling pattern in the PTZ setting interface

Steps:

1. Enter the PTZ Control interface.

   Menu>Camera>PTZ>More Settings

2. Select the pattern number.

3. Click , then the PTZ moves according to the pattern. Click to stop it.

Figure 4. 12 PTZ- Calling Pattern

Call pattern in live view mode.

Steps:

1. In the live view mode, press PTZ control on the front panel or on the remote control, or click PTZ Control icon on the quick setting panel.
2. And then choose **Pattern** on the control bar.
3. Double click the pattern or select the pattern and click to call it.

Figure 4. 13 PTZ Panel- Pattern

4.3 PTZ Control Panel

In the Live View mode, you can press the PTZ Control button on the front panel or on the remote control, or choose the PTZ Control icon to enter the PTZ panel.

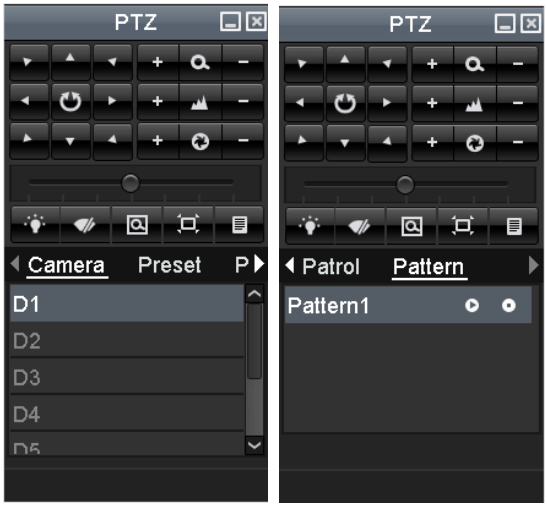


Figure 4. 14 PTZ Panel

Table 4. 1 Description of the PTZ panel icons

Icon	Description	Icon	Description	Icon	Description
	Direction button and the auto-cycle button		Zoom+, Focus+, Iris+		Zoom-, Focus-, Iris-
	The speed of the PTZ movement		Light on/off		Wiper on/off
	3D-Zoom		Image Centralization	Preset	Preset
Patrol	Patrol	Pattern	Pattern		Menu
	Previous item		Next item		Start pattern/patrol
	Stop the patrol or pattern movement		Minimize windows		Exit

Chapter 5 Record and Capture Settings

5.1 Configuring Encoding Parameters

Purpose:

By configuring the encoding parameters you can define the parameters which affect the image quality, such as the transmission stream type, the resolution and so on.

Before you start:

1. Make sure that the HDD has already been installed. If not, please install a HDD and initialize it. (Menu>HDD>General)

Figure 5. 1 HDD- General

2. Check the storage mode of the HDD

   1) Click **Advanced** to check the storage mode of the HDD.

   2) If the HDD mode is *Quota*, please set the maximum record capacity and maximum picture capacity. For detailed information, see *Chapter Configuring Quota Mode*.

   3) If the HDD mode is **Group**, you should set the HDD group. For detailed information, see *Chapter Configuring HDD Group for Recording and Capture*.

Figure 5. 2 HDD- Advanced

Steps:

1. Enter the Record settings interface to configure the encoding parameters:
   Menu>Record>Encoding

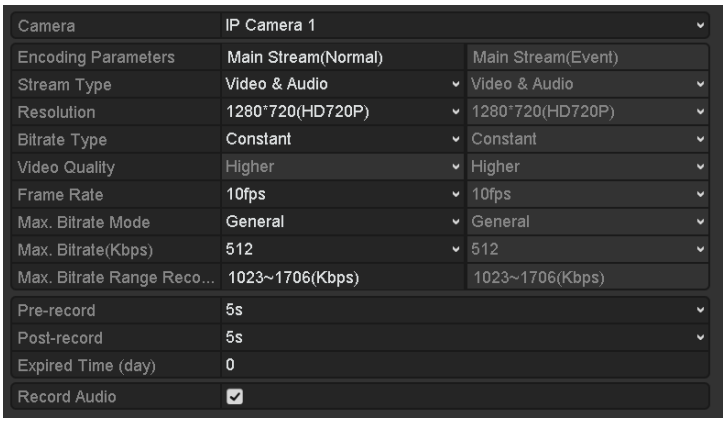


Figure 5. 3 Record Encoding

2. Encoding Parameters Setting for Recording

   1) Select **Record** tab page to configure. You can configure the stream type, the resolution, and other parameters on your demand.

- **Pre-record:** The time you set to record before the scheduled time or event. For example, when an alarm triggered the recording at 10:00, if you set the pre-record time as 5 seconds, the camera records it at 9:59:55.
- **Post-record:** The time you set to record after the event or the scheduled time. For example, when an alarm triggered the recording ends at 11:00, if you set the post-record time as 5 seconds, it records till 11:00:05.
- **Expired Time:** The expired time is the longest time for a record file to be kept in the HDD, if the deadline is reached, the file will be deleted. You can set the expired time to 0, and then the file will not be deleted. The actual keeping time for the file should be determined by the capacity of the HDD.
- **Redundant Record/ Capture:** Enabling redundant record or capture means you save the record and captured picture in the redundant HDD. See *Chapter Configuring Redundant Recording and Capture*.
- **Record Audio:** Check the checkbox to enable or disable audio recording.

2) Click **Apply** to save the settings.

Note: The redundant record/capture is to decide whether you want the camera to save the record files or captured pictures in the redundant HDD. You must configure the redundant HDD in HDD settings. For detailed information, see *Chapter 11.4.2 Setting HDD Property*.

Note: The parameters of Main Stream (Event) are read-only.

3. Encoding Parameters Settings for Sub-stream

1) Enter the Sub-stream tab page.

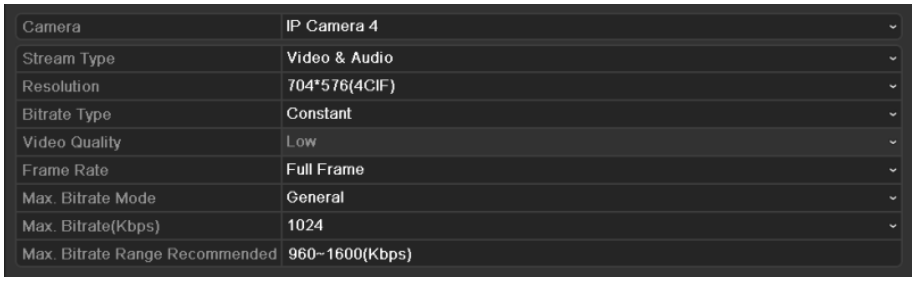


Figure 5. 4 Sub-stream Encoding

2) Configure the parameters of the camera.

3) Click **Apply** to save the settings.

4. Encoding Parameters Settings for Capture

1) Select the **Capture** tab.

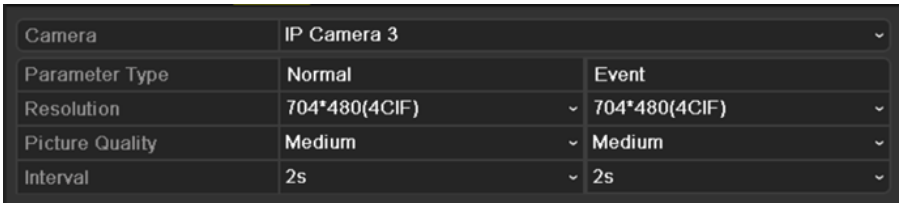


Figure 5. 5 Capture Encoding

2) Configure the parameters.

3) Click **Apply** to save the settings.

Note: The interval is the time period between two capturing actions. You can configure all the parameters on this menu on your demand.

5.2 Configuring Record/Capture Schedule

Purpose:

Set the record schedule, and then the camera automatically starts/stops recording according to the configured schedule.

Note: In this chapter, we take the record schedule procedure as an example, and the same procedure can be applied to configure schedule for both recording and capture. To schedule the automatic capture, you need to choose the Capture tab in the **Schedule** interface.

Steps:

1. Enter the Record Schedule interface.

   Menu>Record/Capture>Schedule

2. Configure Record Schedule

   1) Select Record/Capture Schedule.

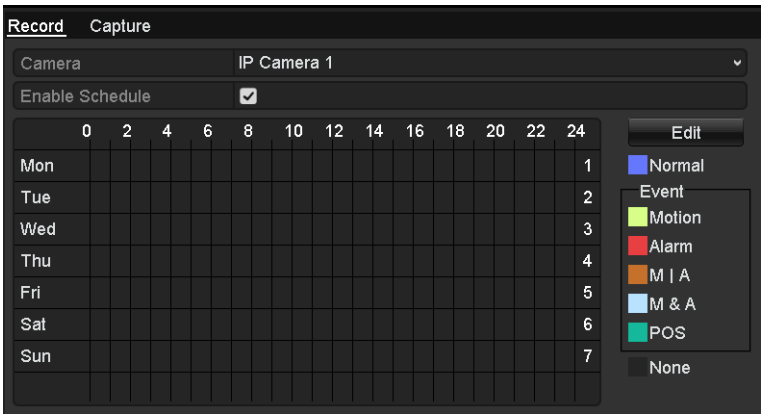


Figure 5. 6 Record Schedule

   2) Choose the camera you want to configure.
   3) Select the check box after the **Enable Schedule** item.
   4) Click **Edit** button or click on the color icon under the edit button and draw the schedule line on the panel.

      Edit the schedule:

      I. In the message box, you can choose the day to which you want to set schedule.

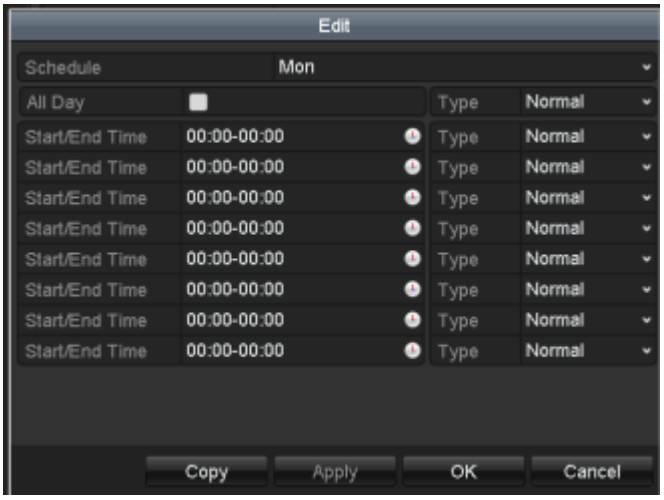


Figure 5. 7 Recording Schedule Interface

You can click the button to set the accurate time of the schedule.

II. To schedule an all-day recording, check the checkbox after the **All Day** item.

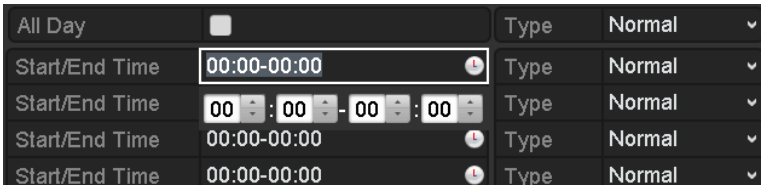


Figure 5. 8 Edit Schedule

III. To arrange other schedule, leave the **All Day** checkbox blank and set the Start/End time.

Note: Up to 8 periods can be configured for each day. And the time periods can't be overlapped each other.

Repeat the above edit schedule steps to schedule recording or capture for other days in the week. If the schedule can also be applied to other days, click **Copy**.

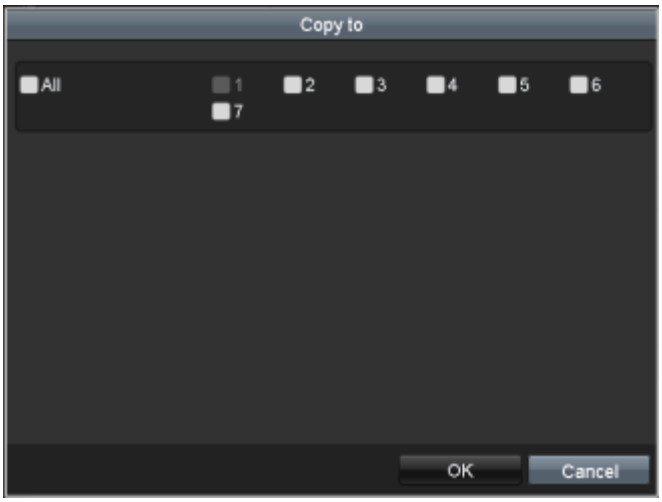


Figure 5. 9 Copy Schedule to Other Days

IV. Click **OK** to save setting and back to upper level menu.

V. Click **Apply** in the Record Schedule interface to save the settings.

Draw the schedule:

Click on the color icons, you can choose the schedule type as normal or event.

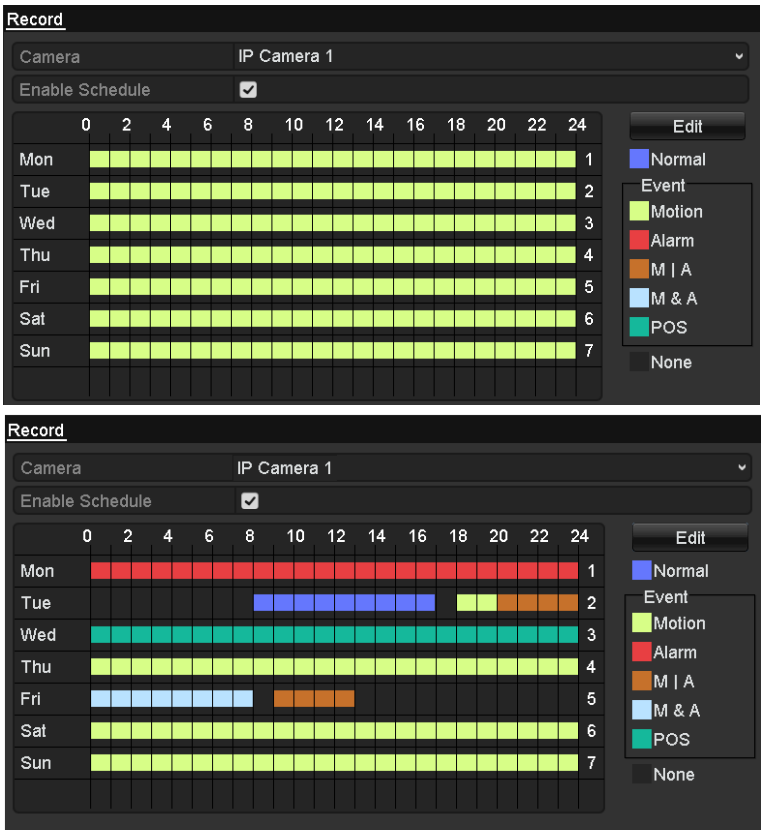


Figure 5. 10 Draw the Schedule

Descriptions of the color icons are shown in the figure below.

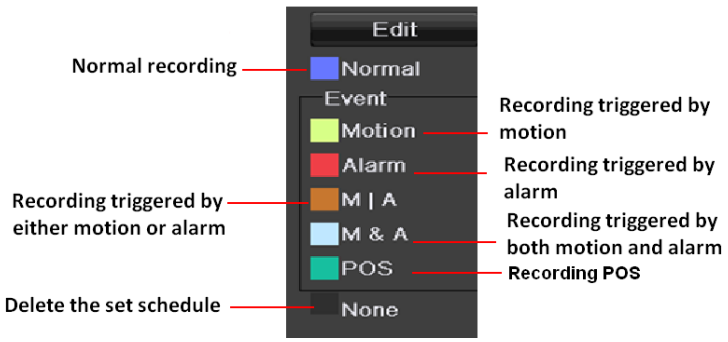


Figure 5. 11 Descriptions of the color icons

Click the **Apply** button to validate the settings.

If the settings can also be used to other channels, click **Copy**, and then choose the channel to which you want to copy.

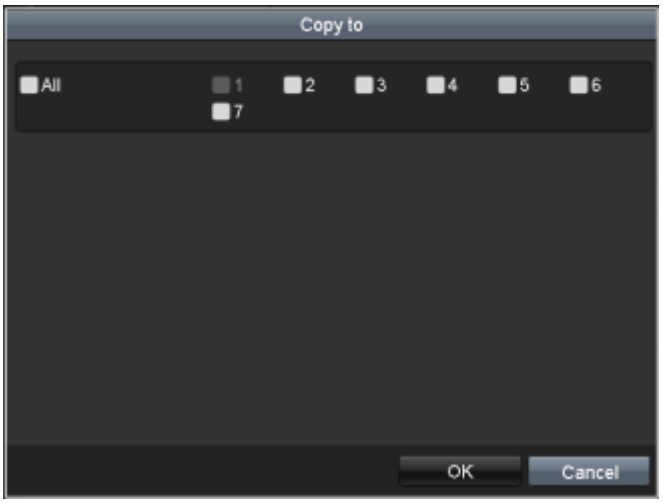


Figure 5. 12 Copy Schedule to Other Channels

5.3 Configuring Motion Detection Record and Capture

Purpose:

Follow the steps to set the motion detection parameters. In the live view mode, once a motion detection event takes place, the NVR can analyze it and do many actions to handle it. Enabling motion detection function can trigger certain channels to start recording, or trigger full screen monitoring, audio warning, notify the surveillance center and so on. In this chapter, you can follow the steps to schedule a record which triggered by the detected motion.

Steps:

1. Enter the Motion Detection interface.

Menu>Camera>Motion

Figure 5. 13 Motion Detection

2. Configure Motion Detection：

1) Choose camera you want to configure.
2) Check the checkbox after **Enable Motion Detection**.
3) Drag and draw the area for motion detection by mouse. If you want to set the motion detection for all the area shot by the camera, click **Full Screen**. To clear the motion detection area, click **Clear**.

Figure 5. 14 Motion Detection- Mask

4) Click **Handling**, and the message box for channel information pop up.

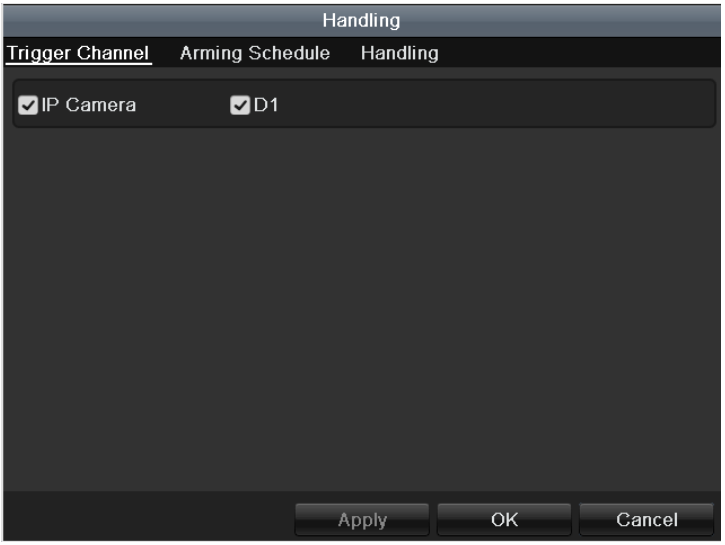


Figure 5. 15 Motion Detection Handling

5) Select the channels which you want the motion detection event to trigger recording.
6) Click **Apply** to save the settings.
7) Click **OK** to back to the upper level menu.
8) Exit the Motion Detection menu.

3. Edit the Motion Detection Record Schedule. For the detailed information of schedule configuration, see *Chapter Configuring Record/Capture Schedule*.

5.4 Configuring Alarm Triggered Record and Capture

Purpose:

Follow the procedure to configure alarm triggered recording or capture.

Steps:

1. Enter the Alarm setting interface.

Menu> Configuration> Alarm

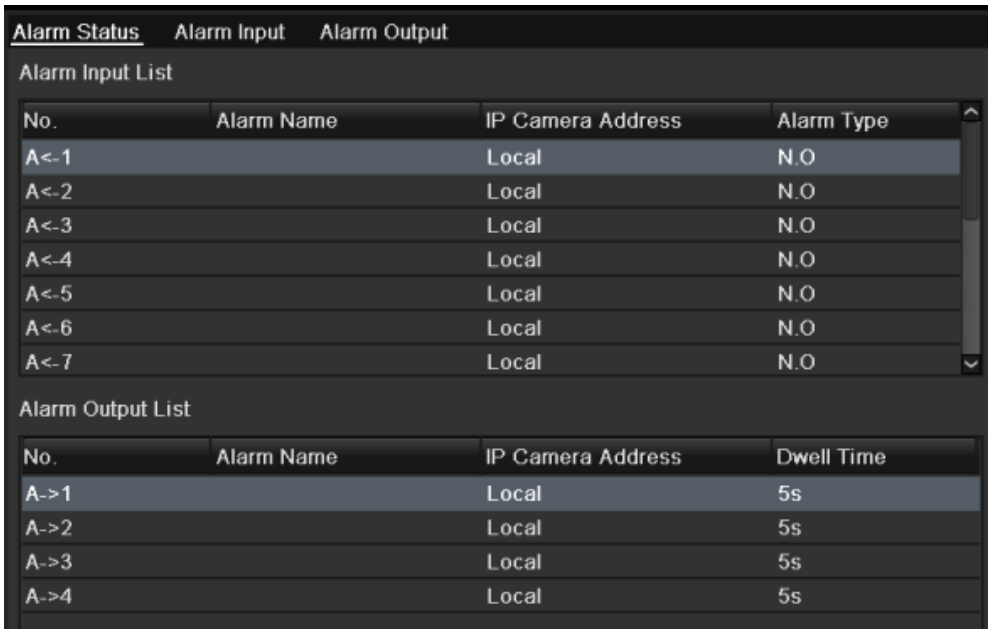


Figure 5. 16 Alarm Settings

2. Click **Alarm Input**.

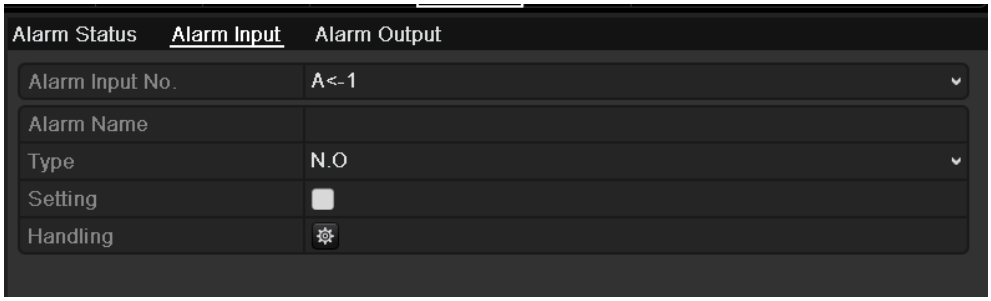


Figure 5. 17 Alarm Settings- Alarm Input

1) Select Alarm Input number and configure alarm parameters.
2) Choose N.O (normally open) or N.C (normally closed) for alarm type.
3) Check the checkbox for Setting.
4) Click **Handling**.

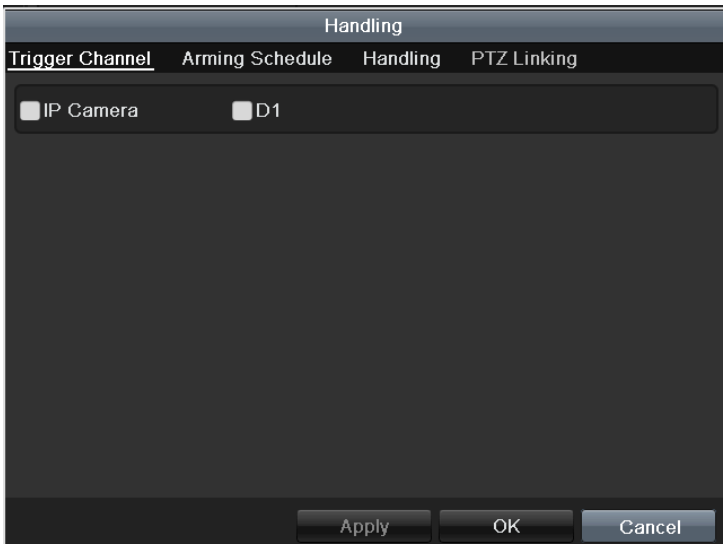


Figure 5. 18 Alarm Handling

5) Choose the alarm triggered recording channel.
6) Check the checkbox to select channel.
7) Click **Apply** to save settings.
8) Click **OK** to back to the upper level menu.

Repeat the above steps to configure other alarm input parameters.

If the settings can also be applied to other alarm inputs, click **Copy** and choose the alarm input number.

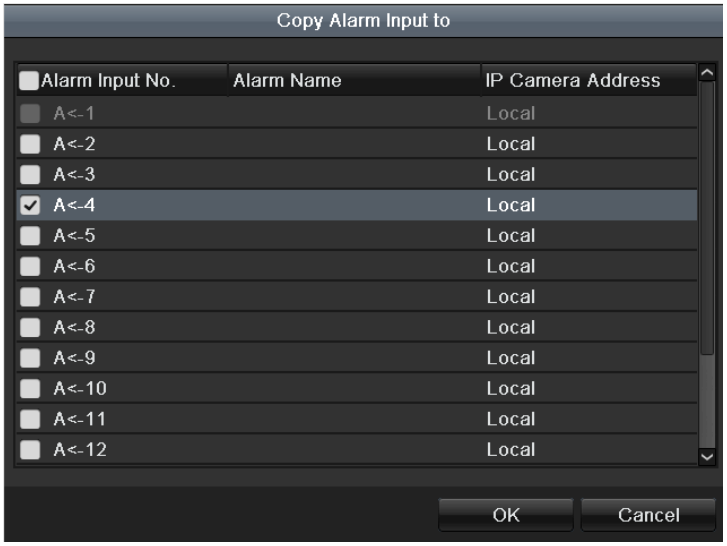


Figure 5. 19 Copy Alarm Input

3. Edit the Alarm triggered record in the Record/Capture Schedule setting interface. For the detailed information of schedule configuration, see *Chapter Configuring Record/Capture Schedule*.

5.5 Manual Record and Continuous Capture

Purpose:

Follow the steps to set parameters for the manual record and continuous capture. Using manual record and continuous capture, you need to manually cancel the record and capture. The manual recording and manual continuous capture is prior to the scheduled recording and capture.

Steps:

1. Enter the Manual settings interface.

Menu> Manual

Or press the **REC/SHOT** button on the front panel.

Figure 5. 20 Manual Record

2. Enabling Manual Record

1) Select **Record** on the left bar.
2) Click the status button before camera number to change OFF to ON.

3. Disable manual record.

Click the status button to change ON to OFF.

Note: Green icon ON means that the channel is configured the record schedule. After rebooting, all the manual records enabled will be canceled.

4. Enabling and disabling the continuous capture

1) Select **Continuous Capture** on the left bar.

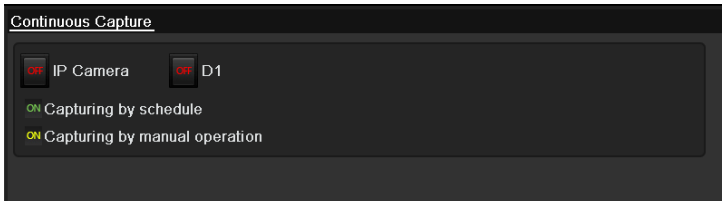


Figure 5. 21 Continuous Capture

2) Click the status button before camera number to change OFF to ON.
3) Disable continuous capture.
4) Click the status button to change ON to OFF.

Note: Green icon ON means that the channel is configured the capture schedule. After rebooting, all the continuous capture will be canceled.

5.6 Configuring Holiday Record and Capture

Purpose:

Follow the steps to configure the record or capture schedule on holiday for that year. You may want to have different plan for recording and capture on holiday.

Steps:

1. Enter the Record setting interface.

Menu>Record> Holiday

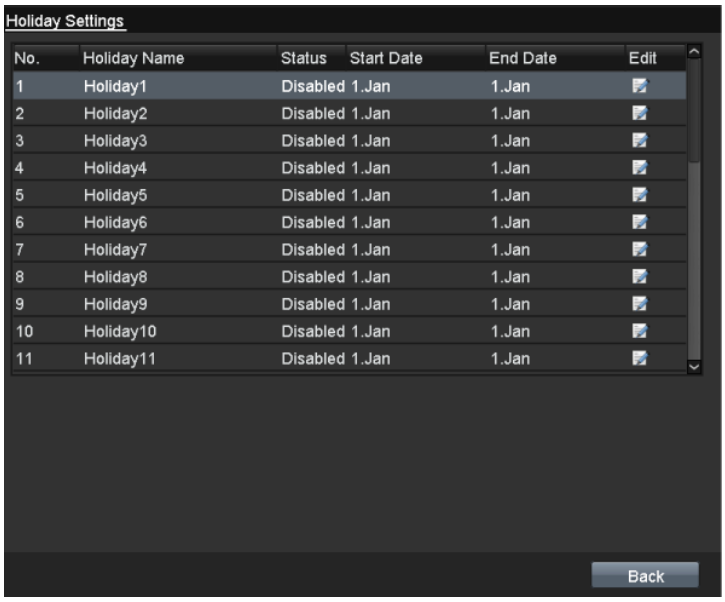


Figure 5. 22 Holiday Settings

2. Enable Edit Holiday schedule.

1) Click to enter the Edit interface.

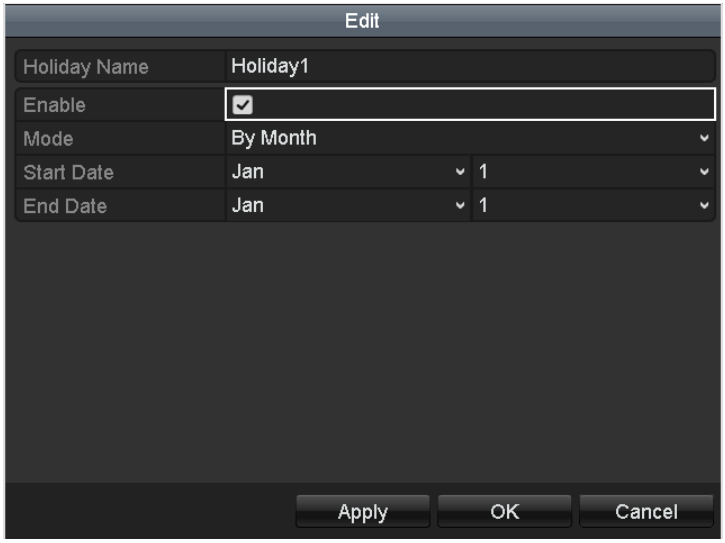


Figure 5. 23 Edit Holiday Settings

2) Check the checkbox after **Enable Holiday**.

3) Select Mode from the dropdown list.

There are three different modes for the date format to configure holiday schedule.

4) Set the start and end date.

5) Click **Apply** to save settings.

6) Click **OK** to exit the Edit interface.

3. Enter Record/Capture Schedule settings interface to edit the holiday recording schedule. See *Chapter 5.2 Configuring Record/Capture Schedule.*

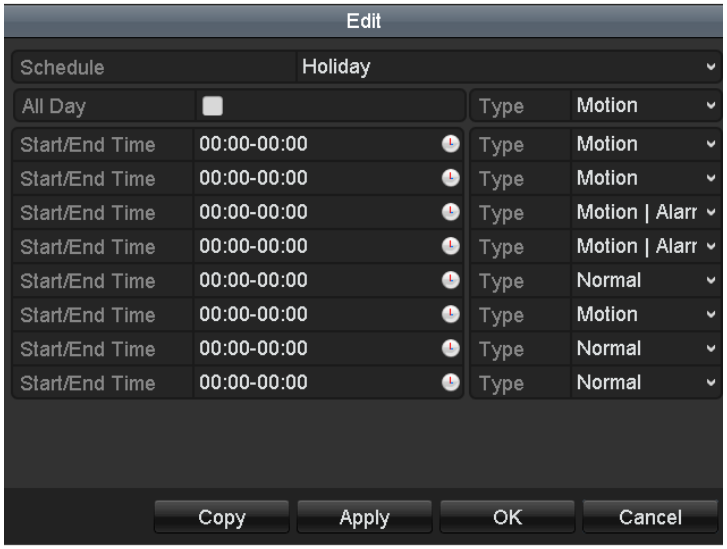


Figure 5. 24 Edit Schedule- Holiday

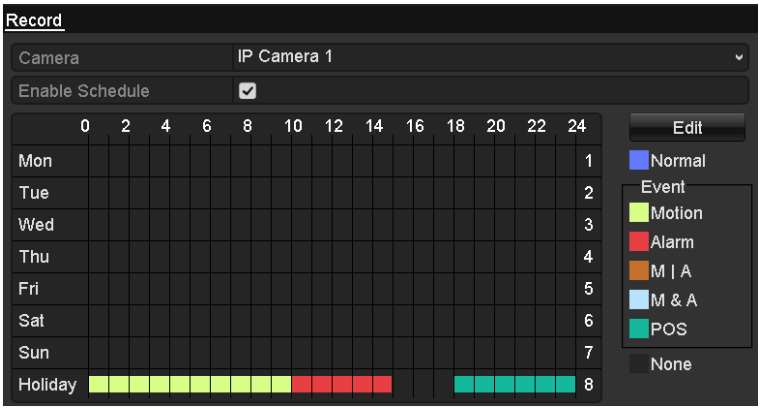


Figure 5. 25 Draw Schedule- Holiday

5.7 Configuring POS Record

Purpose:

Follow the steps to set parameters for the POS record..

Steps:

1. Enter Schedule settings interface.

Menu> Record> Schedule>Record Schedule

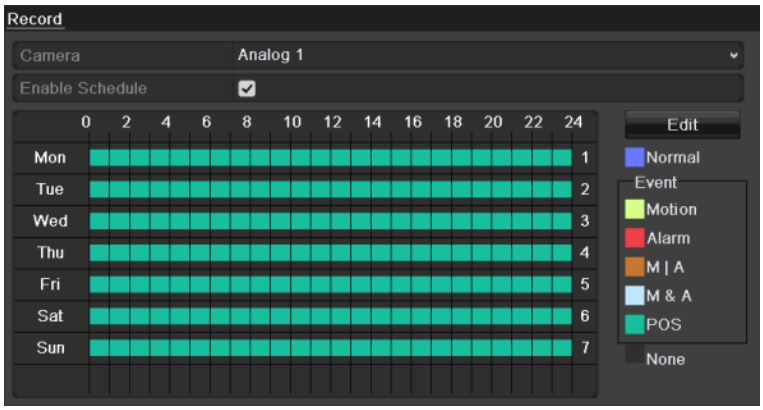


Figure 5. 26 Draw Schedule- Holiday

1) Check the checkbox after the **Enable Schedule** item.
2) Click **Edit**.

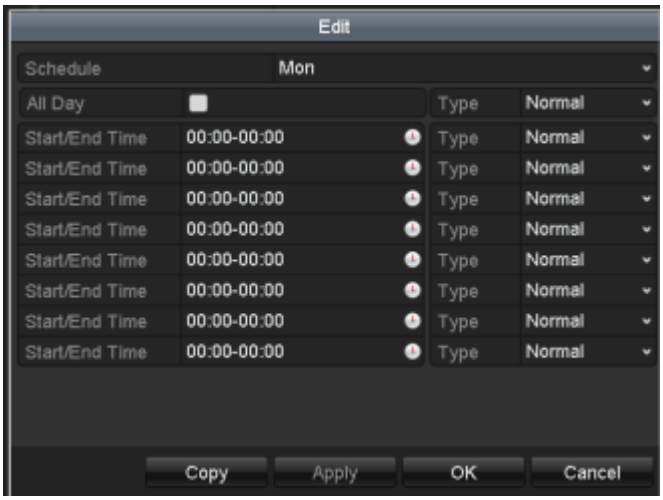


Figure 5. 27 Edit Schedule-POS

3) In the message box, you can choose the day to which you want to set schedule.
4) Set the **Type** as **POS**.
5) To schedule an all-day recording, check the checkbox after the **All Day** item.

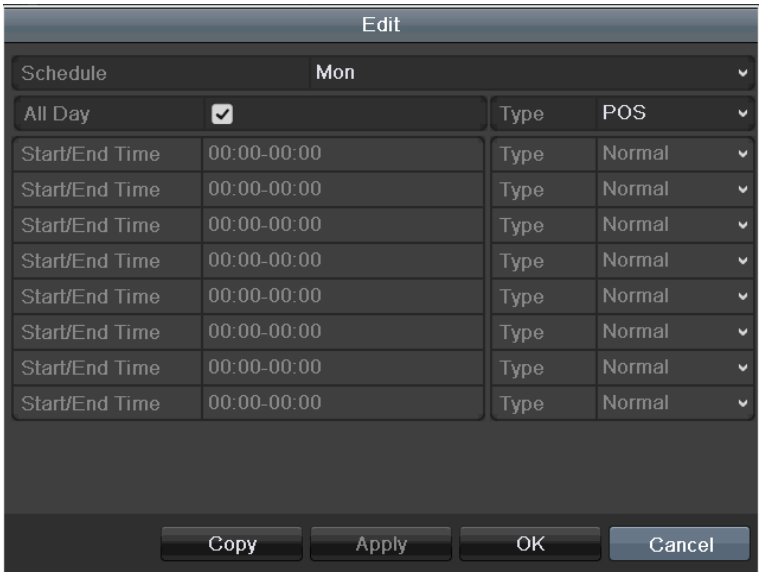


Figure 5. 28 Edit Schedule- All Day

6) To arrange other schedule, leave the **All Day** checkbox blank and set the Start/End time.

Note: Up to 8 periods can be configured for each day. And the time periods can't be overlapped each other.

Repeat the above steps3)-6) to schedule motion detection triggered recording for all the week. If the schedule can also be set to other days, click **Copy**.

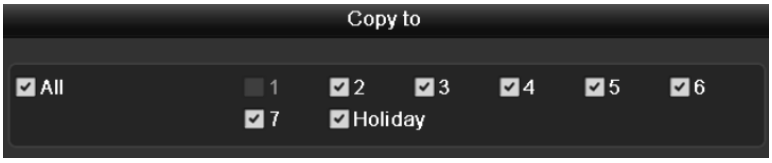


Figure 5. 29 Copy Schedule to Other Days

7) Click **OK** to back to upper level menu.

If you can to copy the same schedule settings to other camera (s), click **Copy** to enter the Copy Camera interface, and then select the camera (s) you want to copy.

Figure 5. 30 Copy Schedule to Other Channels

5.8 Configuring Redundant Recording and Capture

Purpose:

Enabling redundant recording and capture, which means saving the record files and captured pictures not only in the R/W HDD but also in the redundant HDD, will effectively enhance the data safety and reliability. .

Steps:

1. Enter HDD Information interface.

   Menu> HDD

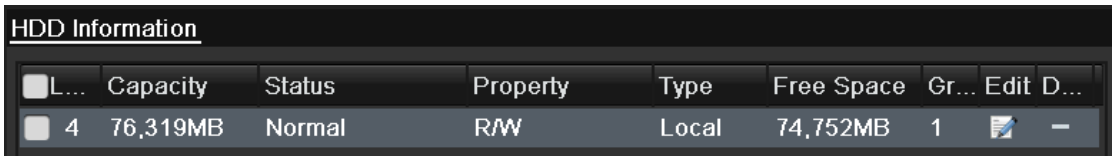


Figure 5. 31 HDD General

2. Select the **HDD** and click to enter the Local HDD Settings interface.

   1) Set the HDD property to Redundancy.

Figure 5. 32 HDD General-Editing

   2) Click **Apply** to save the settings.

   3) Click **OK** to back to the upper level menu.

Note: You must set the Storage mode in the HDD advanced settings to Group before you set the HDD property to Redundant. For detailed information, please refer to *Chapter 11.4 Managing HDD Group*. There should be at least another HDD which is in Read/Write status.

3. Enter the Record setting interface.

   Menu> Record> Encoding

   1) Select **Record** tab.

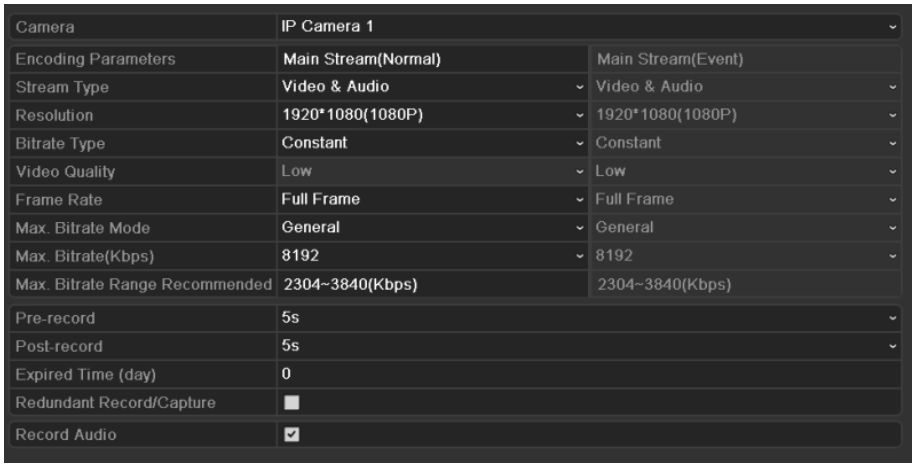


Figure 5. 33 Encoding Record

2) Select Camera you want to configure in the drop-down list.

3) Check the checkbox of **Redundant Record/Capture**.

4) Click **OK** to save settings and back to the upper level menu.

Repeat the above steps for configuring other channels.

5.9 Configuring HDD Group for Recording and Capture

Purpose:

You can group the HDDs and save the record files and captured pictures in certain HDD group.

Steps:

1. Enter HDD setting interface.

   Menu>HDD

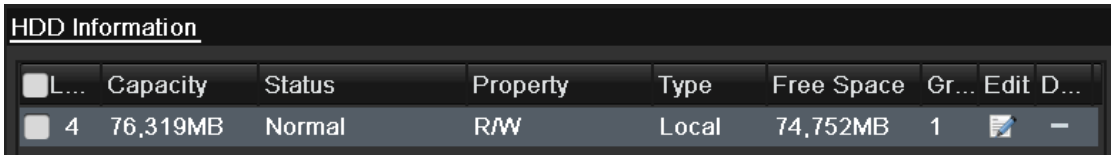


Figure 5. 34 HDD General

2. Select **Advanced** on the left bar.

Figure 5. 35 Storage Mode

   Check whether the storage mode of the HDD is Group. If not, set it to Group. For detailed information, please refer to *Chapter 11.4 Managing HDD Group*.

3. Select **General** in the left bar.

   Click to enter editing interface.

4. Configuring HDD group.

   1) Choose a group number for the HDD group.
   2) Click **Apply** and then in the pop-up message box, click **Yes** to save your settings.
   3) Click **OK** to back to the upper level menu.

Repeat the above steps to configure more HDD groups.

5. Choose the Channels which you want to save the record files and captured pictures in the HDD group.

   1) Select **Advanced** on the left bar.
   2) Choose Group number in the dropdown list of **Record on HDD Group**
   3) Check the channels you want to save in this group.
   4) Click **Apply** to save settings.

   Note: After having configured the HDD groups, you can configure the Recording and Capture settings following the procedure provided in *Chapter 5.2-5.7*.

5.10 Files Protection

Purpose:

You can lock the recorded files or set the HDD property to Read-only to protect the record files from being overwritten.

Protect file by locking the record files:

Steps:

1. Enter Export setting interface.

   Menu> Export

Figure 5. 36 Export

2. Select the channels you want to investigate by checking the checkbox to .
3. Configure the record type, file type start/end time.
4. Click **Search** to show the results.

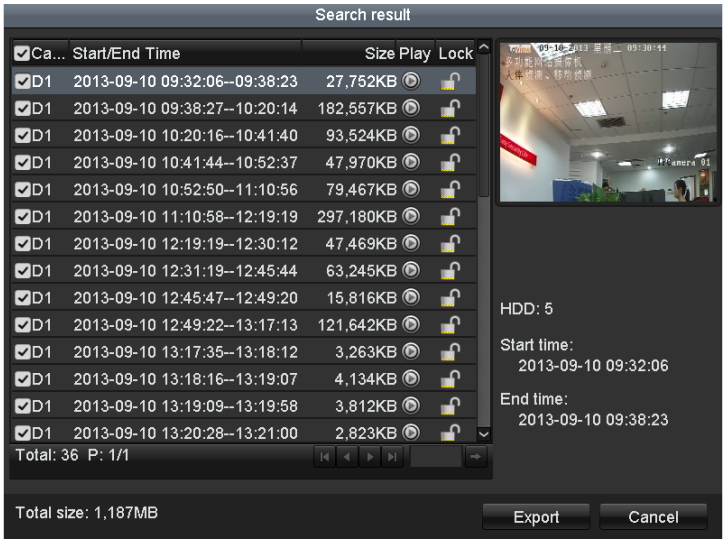


Figure 5. 37 Export- Search Result

5. Protect the record files.

   1) Find the record files you want to protect, and then click the icon which will turn to , indicating that the file is locked.

      Note: The record files of which the recording is still not completed can't be locked.

   2) Click to change it to to unlock the file and the file is not protected.

Figure 5. 38 Unlocking Attention

Protect file by setting HDD property to Read-only

Steps:

1. Enter HDD setting interface.

   Menu> HDD

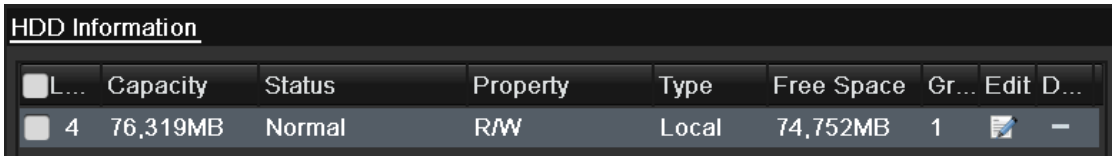


Figure 5. 39 HDD General

2. Click to edit the HDD you want to protect.

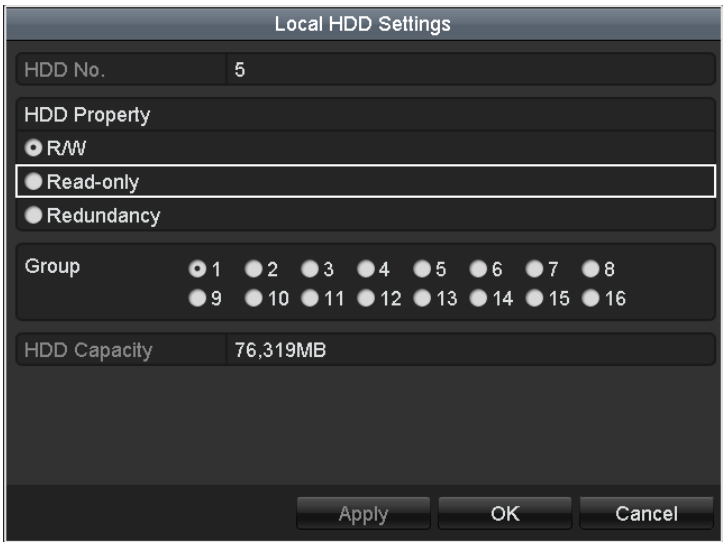


Figure 5. 40 HDD General- Editing

Note: To edit HDD property, you need to set the storage mode of the HDD to Group. See *Chapter Managing HDD Group*.

3. Set the HDD property to Read-only.
4. Click **OK** to save settings and back to the upper level menu.

Notes:

1. You can't save any files in a Read-only HDD. If you want to save files in the HDD, change the property to R/W.
2. If there is only one HDD and is set to Read-only, the NVR can't record any files. Only live view mode is available.
3. If you set the HDD to Read-only when the NVR is saving files in it, then the file will be saved in next R/W HDD. If there is only one HDD, the recording will be stopped.

Chapter 6 Playback

6.1 Playing Back Record Files

6.1.1 Playing Back by Channel

Purpose:

Play back the recorded video files of a specific channel in the live view mode. Channel switch is supported.

- **OPTION 1:**

Choose a channel in live view mode using the mouse and click the button in the quick setting toolbar.

Note: In the instant playback mode, only record files recorded during the last five minutes on this channel will be played back.

Figure 6. 1 Instant Playback Interface

- **OPTION 2:**

1. Enter the Playback interface.

Mouse: right click a channel in live view mode and select from the menu.

Figure 6. 2 Right-click Menu under Live View

Front Panel: press **PLAY** button to play back record files of the channel under single-screen live view mode. Under multi-screen live view mode, the recorded files of the top-left channel will be played back.

Note: Pressing numerical buttons will switch playback to the corresponding channels during playback process.

2. Playback management.

The toolbar in the bottom part of Playback interface can be used to control playing progress, as shown in Figure 6. 3.

Figure 6. 3 Playback Interface

Click the channel(s) to execute simultaneous playback of multiple channels.

Figure 6. 4 Toolbar of Playback

Note: The 2013-09-10 16:18:14 -- 2013-09-10 18:44:22 indicates the start/end time of the record.

Table 6. 1 Detailed Explanation of Playback Toolbar

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Text Show
	Pause play/ Play/ Single-frame play		Pause reverse play/ Reverse play/ Single-frame reverse play		Stop		30s forward
	30s reverse		Slow forward		Fast forward		Previous day
	Next day		Scaling up/down time bar		Process bar		Full Screen
	Exit	Normal	Video type				

Note: Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate special frames.

6.1.2 Playing Back by Time

Purpose:

Play back video files recorded in specified time duration. Multi-channel simultaneous playback and channel switch are supported.

Steps:

1. Enter playback interface.

   Menu>Playback

2. Check the checkbox of channel(s) in the channel list and then double-click to select a date on the calendar.

Figure 6. 5 Playback Calendar

Note: If there are record files for that camera in that day, in the calendar, the icon for that day is displayed as . Otherwise it is displayed as

In the Playback interface:

The toolbar in the bottom part of Playback interface can be used to control playing process, as shown in Figure 6. 6.

Figure 6. 6 Interface of Playback by Time

Figure 6. 7 Toolbar of Playback by Time

Table 6. 2 Detailed Explanation of Playback-by-time Interface

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Text Show
	Pause play/ Play/ Single-frame play		Pause reverse play/ Reverse play/ Single-frame reverse play		Stop		30s forward
	30s reverse		Slow forward		Fast forward		Previous day
	Next day		Scaling up/down time bar		Process bar		Full Screen
	Exit	Normal	Video type				

Note: Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate special frames.

6.1.3 Playing Back by Event Search

Purpose:

Play back record files on one or several channels searched out by restricting event type (e.g. alarm input and motion detection).

Steps:

1. Enter the Playback interface.

   Menu>Playback

2. Select the **Event** in the drop-down list on the top-left side.
3. Select **Alarm Input** or **Motion** as the event type, edit the Start time and End time.

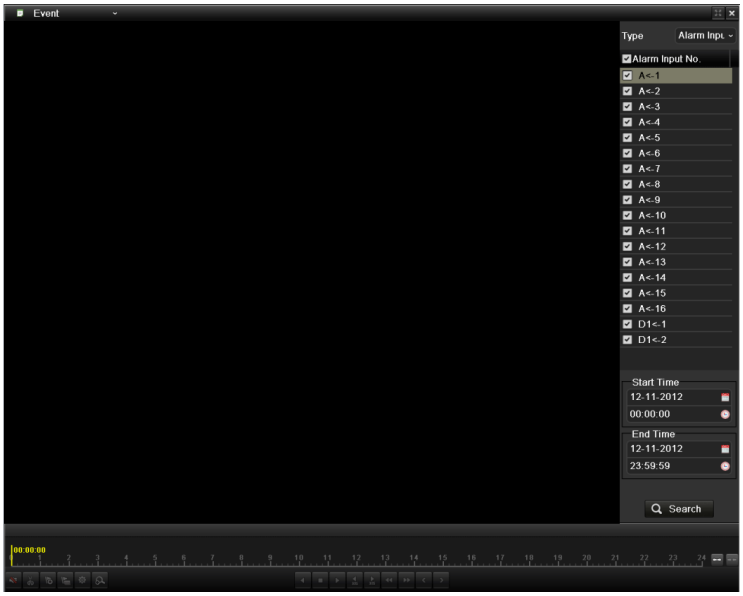


Figure 6. 8 Alarm Input Search Interface

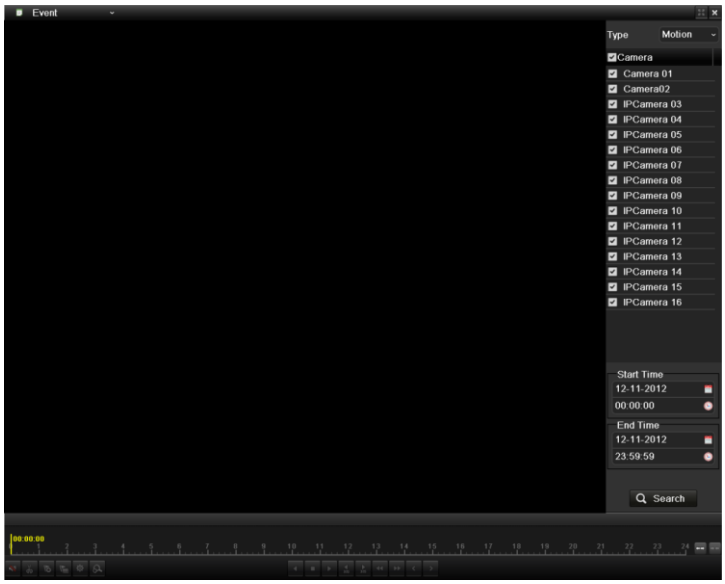


Figure 6. 9 Motion Search Interface

4. Click **Search** button to get the search result information. You may refer to the right-side bar for the result.

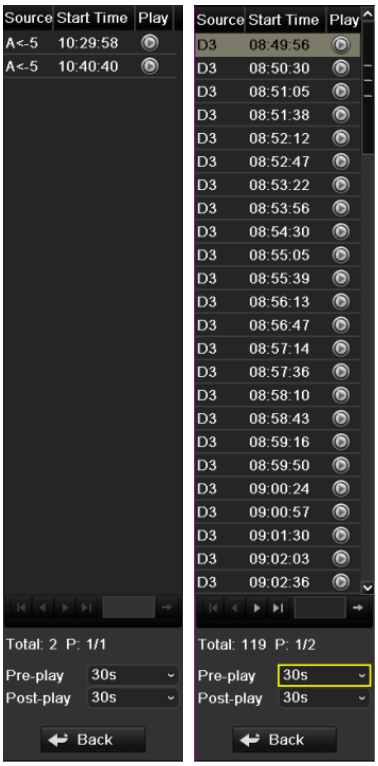


Figure 6. 10 Search Result Bar(Alarm In and Motion)

5. Click button to play back the file.

   You can click the **Back** button to back to the search interface.

   Note: Pre-play and post-play can be configured.

6. Playback interface.

The toolbar in the bottom part of Playback interface can be used to control playing process.

Figure 6. 11 Interface of Playback by Event

Figure 6. 12 Toolbar of Playback by Event

Table 6. 3 Detailed Explanation of Playback-by-event Toolbar

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Pause reverse play/ Reverse play/ Single-frame reverse play
	Pause play/ Play/ Single-frame play		Stop		30s forward		30s reverse
	Slow forward		Fast forward		Previous day		Next day
	Scaling up/down time bar		Process bar		Full Screen		Exit
Event	Video type						

Note: Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate special frames.

6.1.4 Playing Back by Tag

Purpose:

Video tag allows you to record related information like people and location of a certain time point during playback. You are also allowed to use video tag(s) to search for record files and position time point.

Before playing back by tag:

1. Enter Playback interface.
   Menu>Playback
2. Search and play back the record file(s). Refer to *Chapter 6.1.1* for the detailed information about searching and playback of the record files.

Figure 6. 13 Interface of Playback by Time

Click button to add default tag.

Click button to add customized tag and input tag name.

Note: Max. 64 tags can be added to a single video file.

3. Tag management.

Click button to check, edit and delete tag(s).

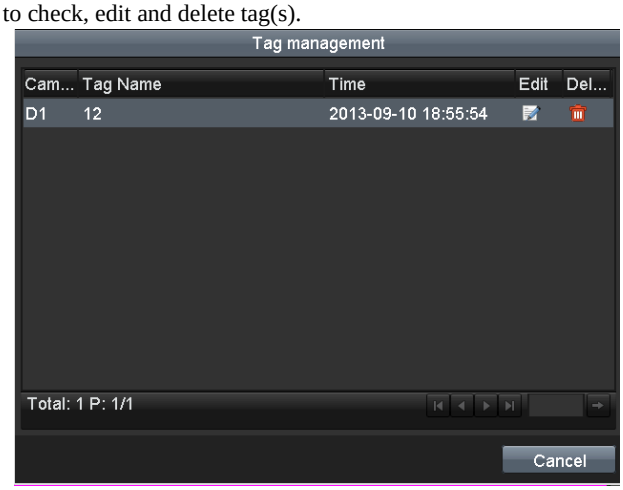


Figure 6. 14 Tag Management Interface

Steps:

1. Select the **Tag** from the drop-down list in the Playback interface.

2. Choose channels, edit start time and end time, and then click Search to enter Search Result interface.

Note: You can enter keyword in the textbox

to search the tag on your command.

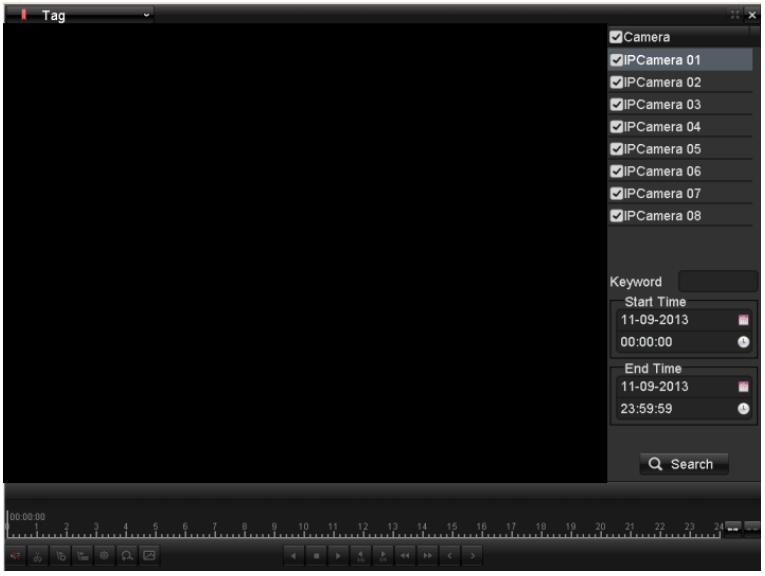


Figure 6. 15 Video Search by Tag

3. Click button to play back the file.

   You can click the **Back** button to back to the search interface.

   Note: Pre-play and post-play can be configured.

Figure 6. 16 Interface of Playback by Tag

Figure 6. 17 Toolbar of Playback by Tag

Table 6. 4 Detailed Explanation of Playback-by-tag Toolbar

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Pause reverse play/ Reverse play/ Single-frame reverse play
	Pause play/ Play/ Single-frame play		Stop		30s forward		30s reverse
	Slow forward		Fast forward		Previous day		Next day
	Scaling up/down time bar		Process bar		Full Screen		Exit
Tag	Video type						

Note: Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate special frames.

6.1.5 Playing Back by System Logs

Purpose:

Play back record file(s) associated with channels after searching system logs.

Steps:

1. Enter Log Information interface.

   Menu>Maintenance>Log Information

2. Click **Log Search** tab to enter Playback by System Logs.

   Set search time and type and click **Search** button.

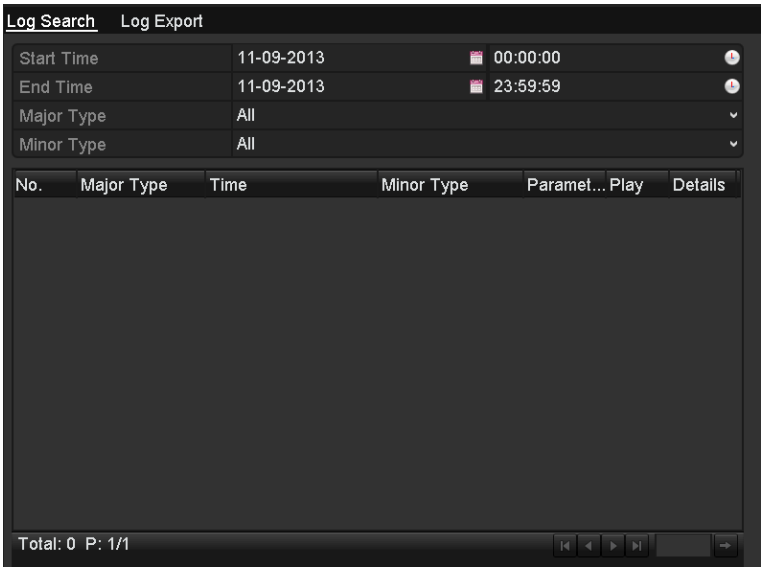


Figure 6. 18 System Log Search Interface

3. Choose a log with record file and click button to enter Playback interface.

   Note: If there is no record file at the time point of the log, the message box "No result found" will pop up.

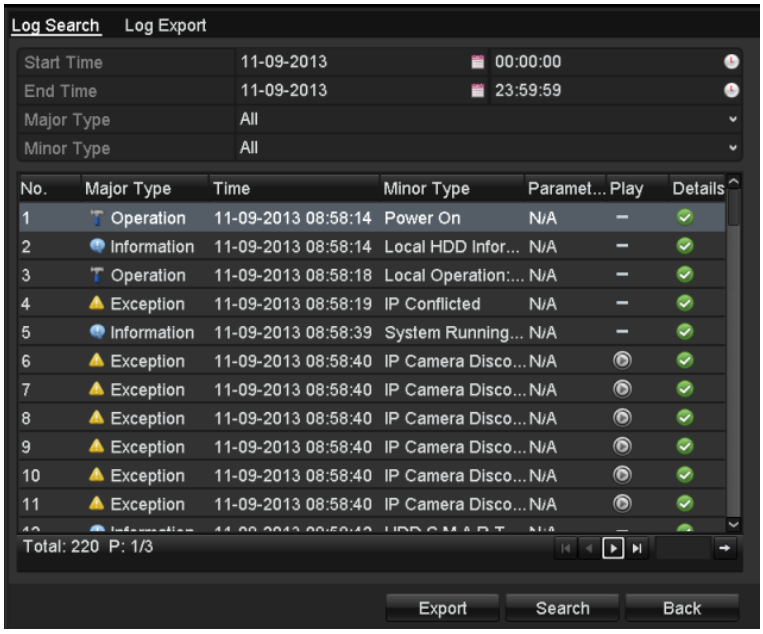

Log Search
Log Export
Start Time 11-09-2013 00:00:00
End Time 11-09-2013 23:59:59
Major Type All
Minor Type All
No. Major Type Time Minor Type Paramet... Play Details
1 Operation 11-09-2013 08:58:14 Power On N/A
2 Information 11-09-2013 08:58:14 Local HDD Infor... N/A
3 Operation 11-09-2013 08:58:18 Local Operation:... N/A
4 Exception 11-09-2013 08:58:19 IP Conflicted N/A
5 Information 11-09-2013 08:58:39 System Running... N/A
6 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
7 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
8 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
9 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
10 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
11 Exception 11-09-2013 08:58:40 IP Camera Disco... N/A
Total: 220 P: 1/3
Export
Search
Back

Figure 6. 19 Result of System Log Search

4. Playback interface.

   The toolbar in the bottom part of Playback interface can be used to control playing process.

Figure 6. 20 Interface of Playback by Log

6.1.6 Playing Back External File

Purpose:

Perform the following steps to look up and play back files in the external devices.

Steps:

1. Enter Tag Search interface.

   Menu>Playback

2. Select the **External File** in the drop-down list on the top-left side.

   The files are listed in the right-side list.

   You can click the Refresh button to refresh the file list.

3. Select and click the button to play back it.

Figure 6. 21 Interface of External File Playback

6.1.7 Playing Back POS

Purpose:

Video tag allows you to record related information like people and location of a certain time point during playback. You are also allowed to use video pos to search for record files and position time point.

Steps:

1. Enter the playback interface.
   Menu>Playback
2. Click Normal and select POS to enter the Event Playback interface.
3. Choose channels, edit the Start and End time, you can enter keyword in the textbox Match Approximate to search the text on your command.

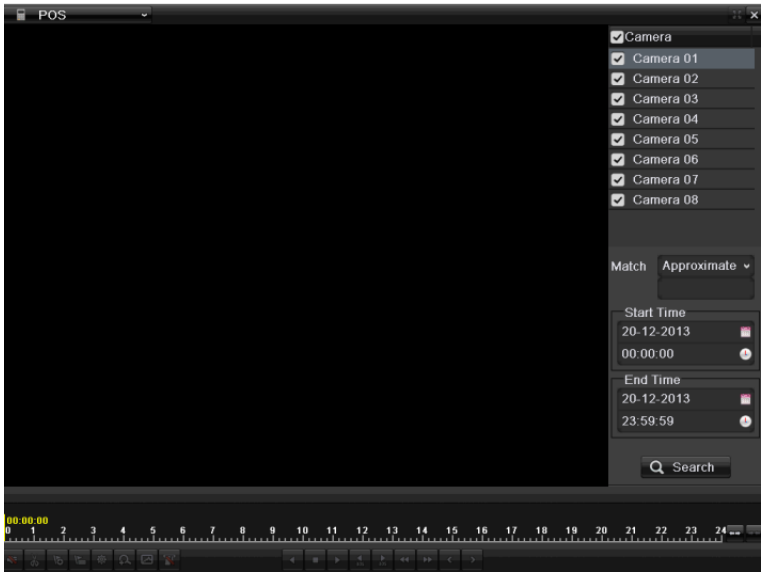


Figure 6. 22 Event Playback Interface-Alarm Input

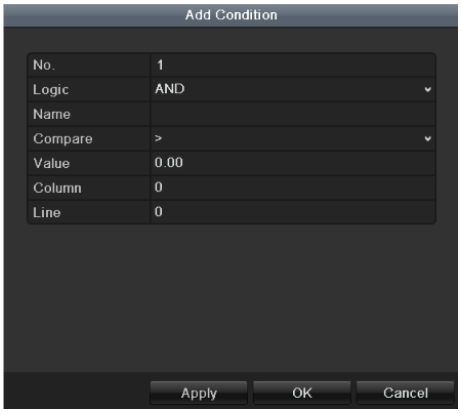


Figure 6. 23 Exact match set

Note:"Match" condition can choose "Exact match" or "Approximate match"

"Approximate match": you can enter specific keyword in the textbox, then it can search all the videos which include the keyword

"Exact match": you can add logical and conditional statement to search the video you want.

4. Click Search to get the search result information listed in the right-side panel.

5. Click button to play back the record files.

   You can click Back to return to the search interface.

Note: Pre-play and post-play can be configured for the alarm input triggered record files.

Pre-play: The time you set to play back before the event. For example, when an alarm triggered the recording at 10:00, if you set the pre-play time as 5 seconds, the video plays back from 9:59:55.

Post-play: The time you set to play back after the event. For example, when an alarm triggered the recording ends at 11:00, if you set the post-play time as 5 seconds, the video plays back till 11:00:05.

If there is only one channel is triggered by an alarm input, clicking button takes you to Full-screen Playback interface of this channel.

If several channels are triggered, clicking button takes you to the interface for checking checkbox to select one channel for playback or select multiple channels for synchronous playback.

Note: 4-ch, 8-ch, 16-ch devices support 8-ch, 16-ch and 16-ch synchronous playback respectively.

6. Playback interface.

   The toolbar in the bottom part of Playback interface can be used to control playing process.

Figure 6. 24 Toolbar of Playback by POS

Table 6. 1 Detailed Explanation of Playback-by-event Interface

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Text Show
	Pause play/ Play/ Single-frame play		Pause reverse play/ Reverse play/ Single-frame reverse play		Stop		30s forward
	30s reverse		Slow forward		Fast forward		Previous day
	Next day		Scaling up/down time bar		Process bar		Full Screen
	Exit	Normal	Video type				

Notes: Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate specific frames.

6.2 Auxiliary Functions of Playback

6.2.1 Playing Back Frame by Frame

Purpose:

Play video files frame by frame, in case of checking image details of the video when abnormal events happen.

Steps:

- **Using a Mouse:**

Go to Playback interface.

If you choose playback of the record file: click button until the speed changes to Single frame and one click on the playback screen represents playback of one frame.

If you choose reverse playback of the record file: click button until the speed changes to Single frame and one click on the playback screen represents reverse playback of one frame. It is also feasible to use button in toolbar.

- **Using the Front Panel:**

Rotate and hold the outer ring on Jog Shuttle counter clockwise (for LV-N99xx only) or click the button to set the speed to Single frame. One click on button, one click on the playback screen or Enter button on the front panel represents playback or reverse playback of one frame.

6.2.2 Smart Search

Purpose:

In order to locate motion detection event easily and accurately in the playback progress bar, you are allowed to analyze a certain area (scene) dynamically, and to get all of the related motion detection events that occurred in this area.

Note: The smart search function varies according to the camera connected to the NVR.

Before you start:

1. Log in the network camera by the web browser, and enable the Dynamic Analysis for Motion by checking the checkbox of it. You may enter the motion detection configuration interface by Configuration> Advanced Configuration> Events> Motion Detection.

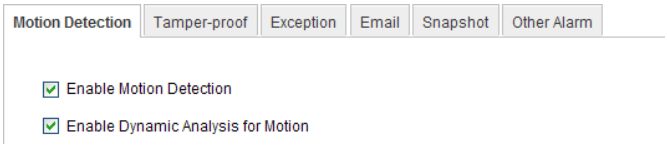


Figure 6. 25 Motion Detection Settings

2. Enable the motion detection function and set the arming area to the full screen in the NVR local menu. Please refer to *chapter 8.1* for details.

Steps:

1. Enter the Playback interface and play a record file. Refer to *Chapter 6.1.1* for the detailed information about searching and playback of the record files.

Figure 6. 26 Interface of Playback by Time

2. Click the on the playback control toolbar to enter Smart Search mode.
3. Click and drag the mouse to draw area(s). You can click button to set the full screen as target searching area. After drawing area(s), click button to execute smart search in this area.

Note: Multi-area and full-screen searching modes are supported.

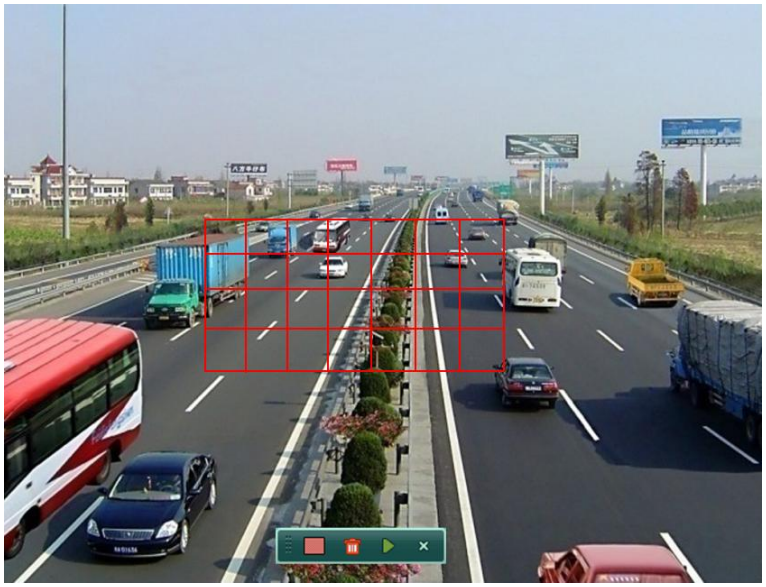


Figure 6. 27 Draw Area of Smart Search

The results of smart search will be marked as in the progress bar.

The hidden list of record files display when moving the mouse to the right of the playback interface.

Figure 6. 28 Smart Search Result

Figure 6. 29 Toolbar of Smart Search Playback

Note: The 2013-09-10 16:18:14 -- 2013-09-10 18:44:22 indicates the start/end time of the record.

Table 6. 5 Detailed Explanation of Smart-search-playback Toolbar

Button	Operation	Button	Operation	Button	Operation	Button	Operation
	Audio on /Mute		Start/Stop clipping		Add default tag		Add customized tag
	Tag management		Digital Zoom		Smart Search		Pause reverse play/ Reverse play/ Single-frame reverse play
	Pause play/ Play/ Single-frame play		Stop		30s forward		30s reverse
	Slow forward		Fast forward		Previous day		Next day
	Scaling up/down time bar		Process bar		Full Screen		Exit
Normal	Video type		Smart search result				

Note:

Playback progress bar: use the mouse to click any point of the progress bar or drag the progress bar to locate special frames.

6.2.3 Digital Zoom

Steps:

1. Click the button on the playback control bar to enter Digital Zoom interface.
2. Use the mouse to draw a red rectangle and the image within it will be enlarged up to 16 times.

Figure 6. 30 Draw Area for Digital Zoom

3. Right-click the image to exit the digital zoom interface.

6.2.4 Reverse Playback of Multi-channel

Purpose:

You can play back record files of multi-channel reversely. Up to 16-ch (with 1280*720 resolution) simultaneous reverse playback is supported; up to 4-ch (with 1920*1080P resolution) simultaneous reverse playback is supported and up to 1-ch (with 2560*1920 resolution) reverse playback is supported.

Note: We use the interface of LV-N99xx series (unless stated) as example to describe the following settings.

Steps:

1. Enter Playback interface.

   Menu>Playback

2. Check more than one checkboxes to select multiple channels and click to select a date on the calendar.

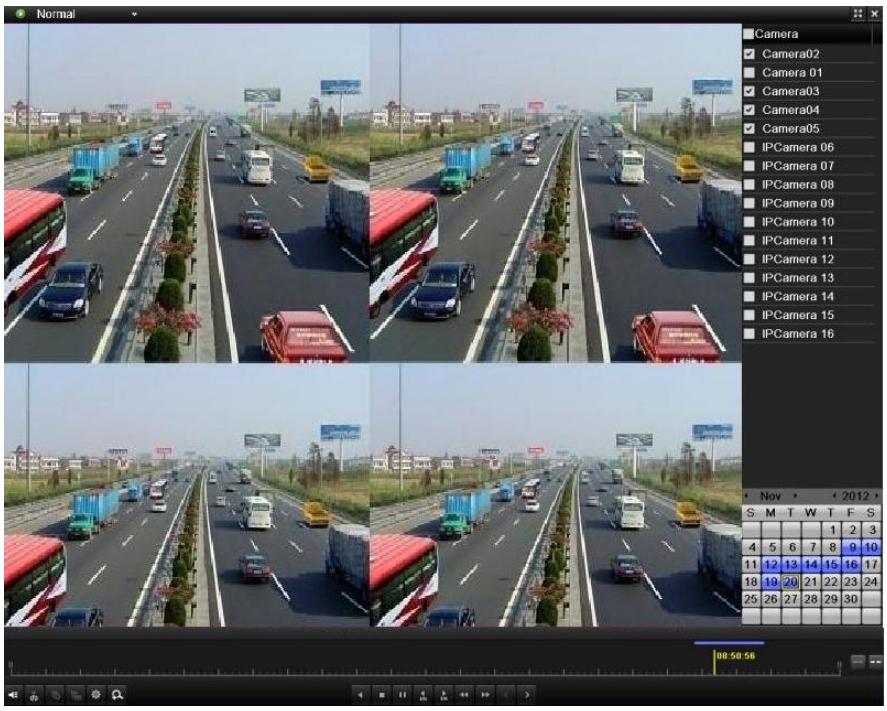


Figure 6. 31 4-ch Synchronous Playback Interface

3. Click to play back the record files reversely.

6.3 Picture Playback

Purpose:

Search and view captured pictures stored in HDD.

Steps:

1. Enter Playback interface.

   Menu>Playback

2. Select the **Picture** in the drop-down list on the top-left side.

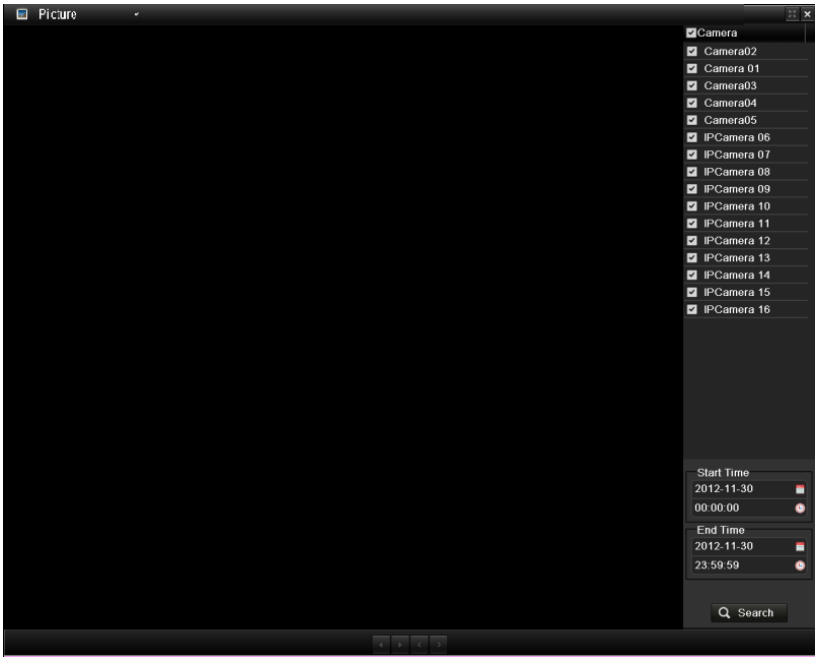


Figure 6. 32 Interface of Playback by Picture

3. Choose channels, edit start time and end time, and then click Search to enter Search Result interface.
4. Choose a picture you want to view and click button.

   You can click the **Back** button to back to the search interface.

Figure 6. 33 Result of Picture Search

5. The toolbar in the bottom part of Playback interface can be used to control playing process.

Figure 6. 34 Picture Playback Toolbar

Table 6. 6 Detailed Explanation of Picture-playback Toolbar

Button	Function	Button	Function	Button	Function	Button	Function
◂	Play reverse	▸	Play	‹	Previous picture	›	Next picture

Chapter 7 Backup

7.1 Backing up Record Files

Before you start:

Please insert the backup device(s) into the device.

7.1.1 Quick Export

Purpose:

Export record files to backup device(s) quickly.

Steps:

1. Enter Video Export interface.

   Menu>Export>Normal

   Choose the channel(s) you want to back up and click Quick Export.

   Note: The time duration of record files on a specified channel cannot exceed one day. Otherwise, the message box "Max. 24 hours are allowed for quick export." will pop up.

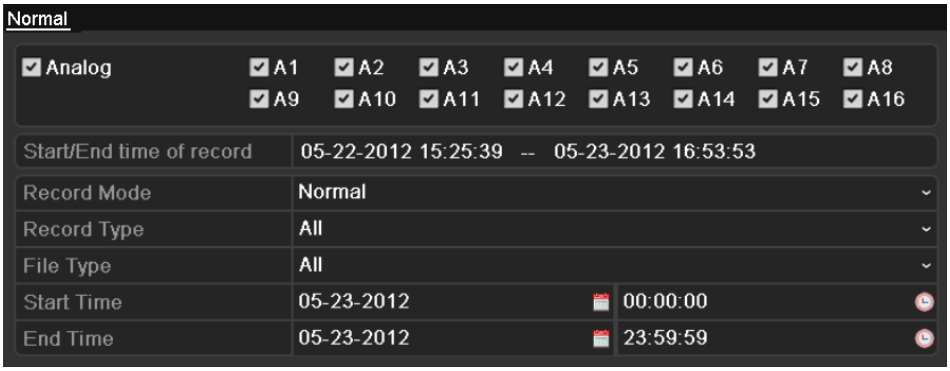


Figure 7. 1 Quick Export Interface

2. Export.

   Go to Export interface, choose backup device and click Export to start exporting.

   Note: Here we use USB Flash Drive and please refer to *Chapter 7.1.2 Backing up by Normal Video Search* for more backup devices supported by the device.

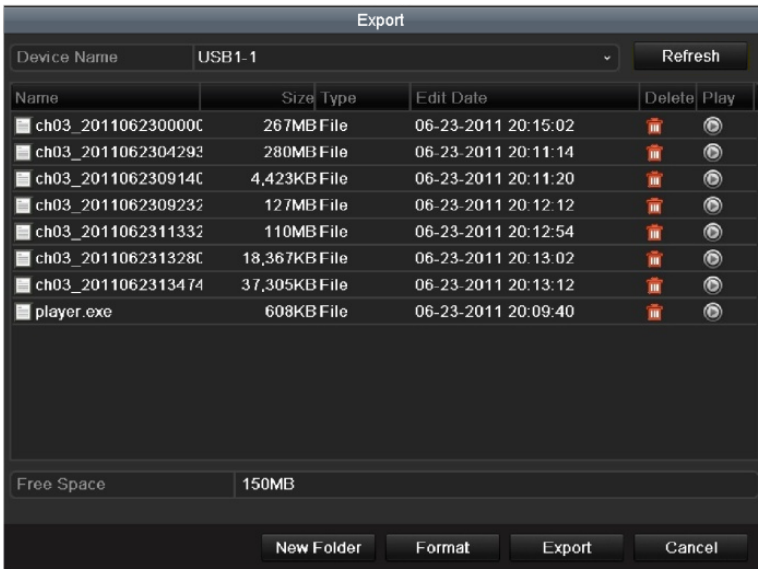


Figure 7. 2 Quick Export using USB1-1

Stay in the Exporting interface until all record files are exported.

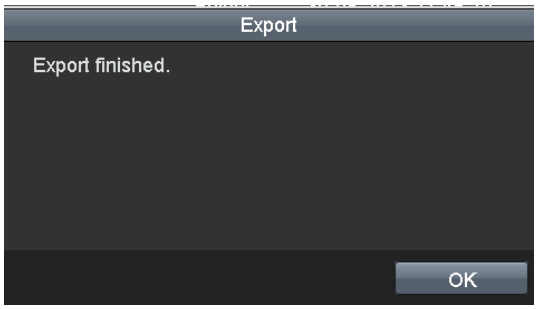


Figure 7. 3 Export Finished

3. Check backup result.

Choose the record file in Export interface and click button to check it.

Note: The Player player.exe will be exported automatically during record file export.

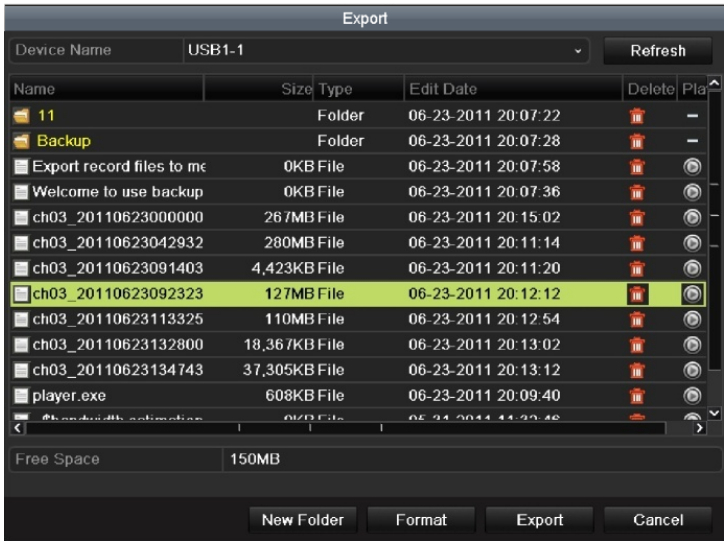


Figure 7. 4 Checkup of Quick Export Result Using USB1-1

7.1.2 Backing up by Normal Video Search

Purpose:

The record files can be backup to various devices, such as USB devices (USB flash drives, USB HDDs, USB writer) and DVD-R/W.

Backup using USB flash drives, USB HDDs, USB writer and DVD-R/W

Steps:

1. Enter Export interface.

   Menu>Export>Normal

2. Set search condition and click Search to enter the search result interface.

   Notes:

   1) Six different Record types are selectable: Continuous, Motion, Alarm, Motion | Alarm, Motion & Alarm, Command Triggered and Manual. The command triggered record is configured by the platform when the device accessed via the platform.

   2) Two different File types are selectable: Unlocked and Locked.

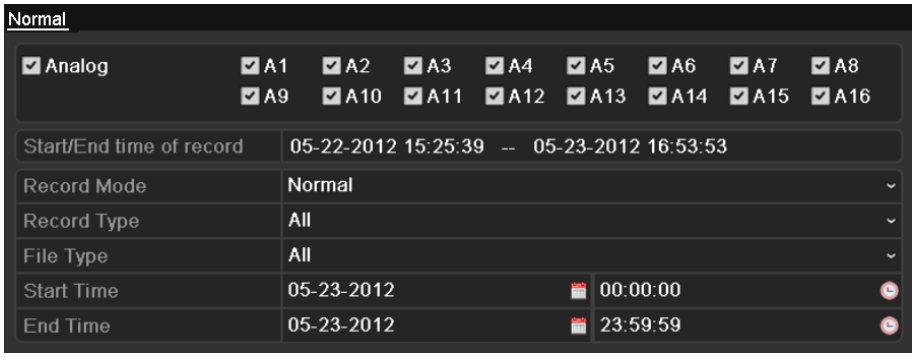


Figure 7. 5 Normal Video Search for Backup

3. Select record files you want to back up.

   Click button to play the record file if you want to check it.

   Check the checkbox before the record files you want to back up.

   Note: The size of the currently selected files is displayed in the lower-left corner of the window.

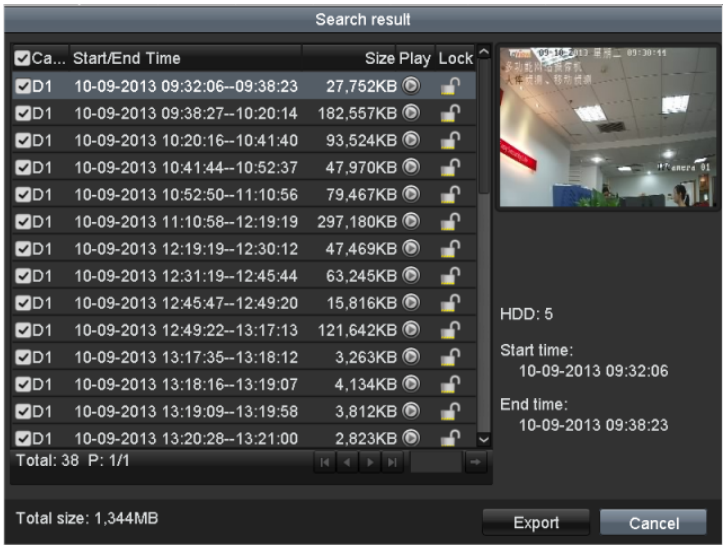


Figure 7. 6 Result of Normal Video Search for Backup

4. Export.

Click Export and start backup.

Note: If the inserted device is not recognized:

- Click Refresh.
- Reconnect device.
- Check for compatibility from vendor.

You can also format USB flash drives or USB HDDs via the device. USB writer and DVD-R/W cannot be formatted.

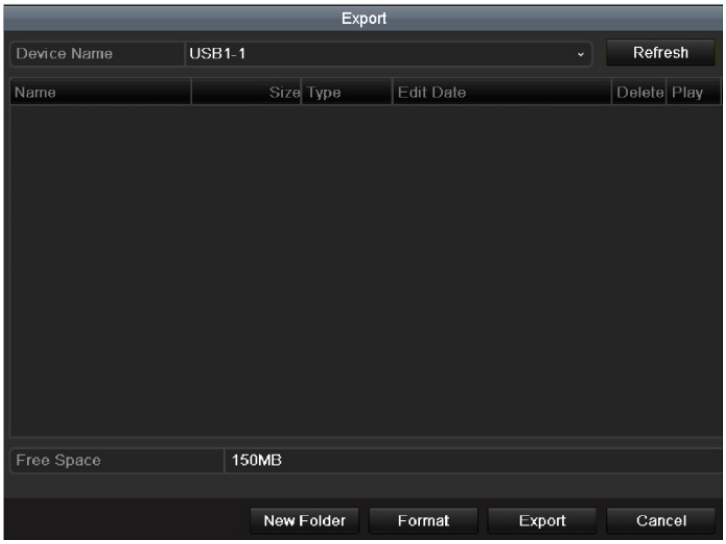


Figure 7. 7 Export by Normal Video Search using USB Flash Drive

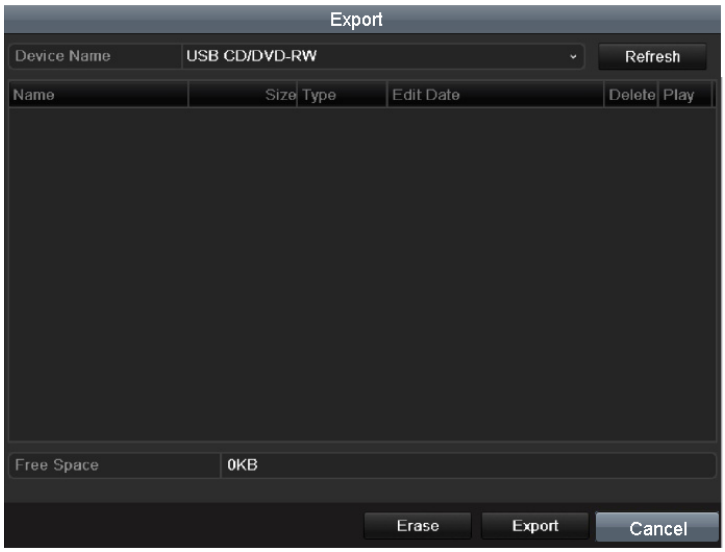


Figure 7. 8 Export by Normal Video Search using USB Writer

Stay in the Exporting interface until all record files are exported with pop-up message box “Export finished”.

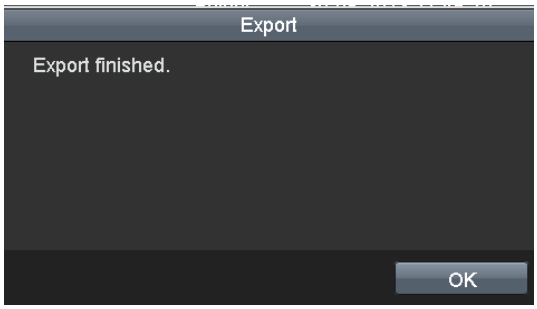


Figure 7. 9 Export Finished

5. Check backup result.

Choose the record file in Export interface and click button to check it.

Note: The Player player.exe will be exported automatically during record file export.

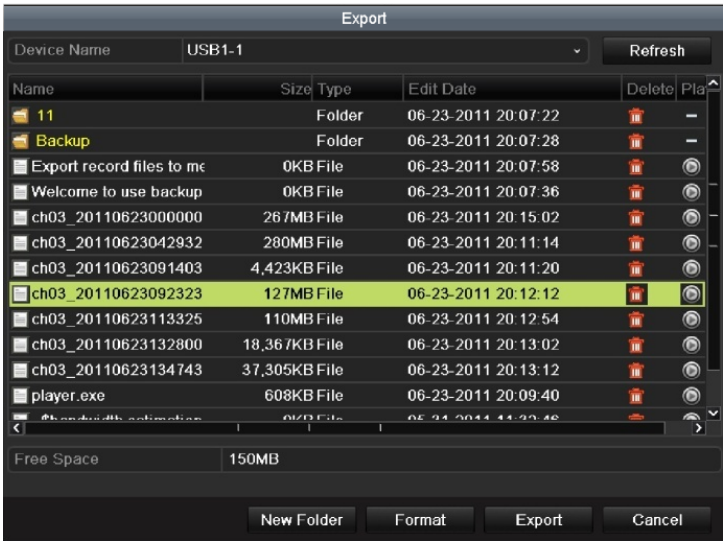


Figure 7. 10 Checkup of Export Result using USB Flash Drive

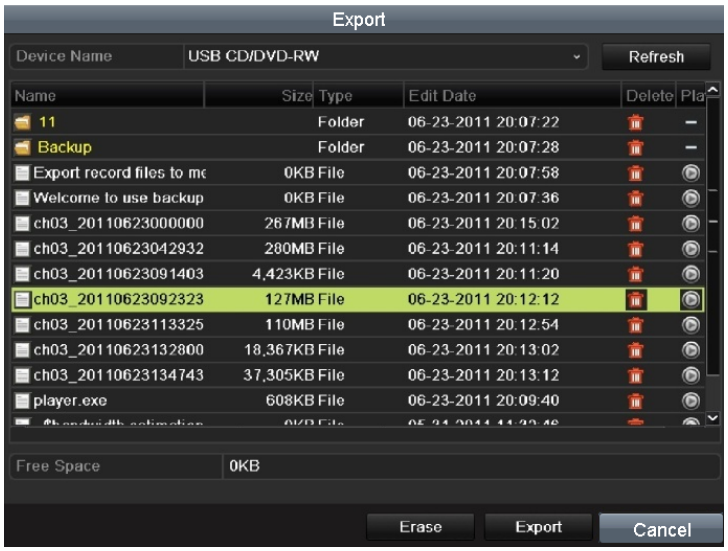


Figure 7. 11 Checkup of Export Result using USB Writer

7.1.3 Backing up by Event Search

Purpose:

Back up event-related record files using USB devices (USB flash drives, USB HDDs, USB writer), or DVD-R/W. Quick Backup and Normal Backup are supported.

Steps:

1. Enter Export interface.

   Menu>Export>Event

   1) Select Alarm Input/Motion from the dropdown list of Event Type.

   Note: Here we take Alarm Input as an example.

   2) Select the alarm input No. and time.

   3) Click Search to enter the Search Result interface.

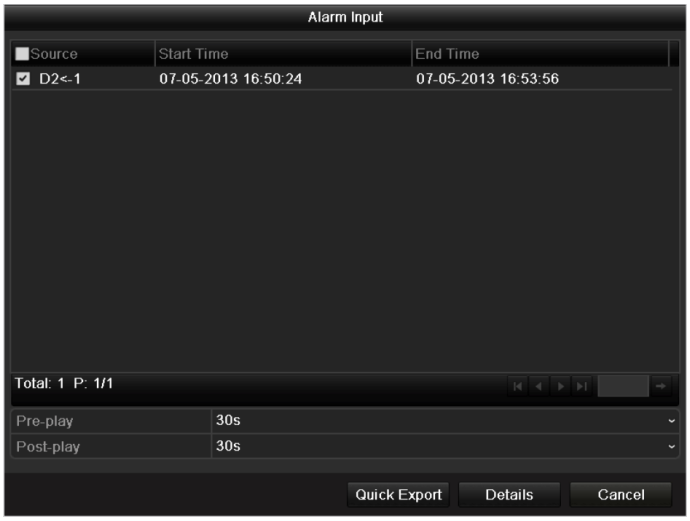


Figure 7. 12 Event Search for Backup

2. Select record files to export.

1) Select an alarm input in the list and click Quick Export to enter Export interface.

2) Clicking Details will take you to the interface with detailed information of all channels triggered by the selected alarm input. You can view detailed information of the record file, e.g. start time, end time and file size.

Note: The size of the currently selected files is displayed in the lower-left corner of the window.

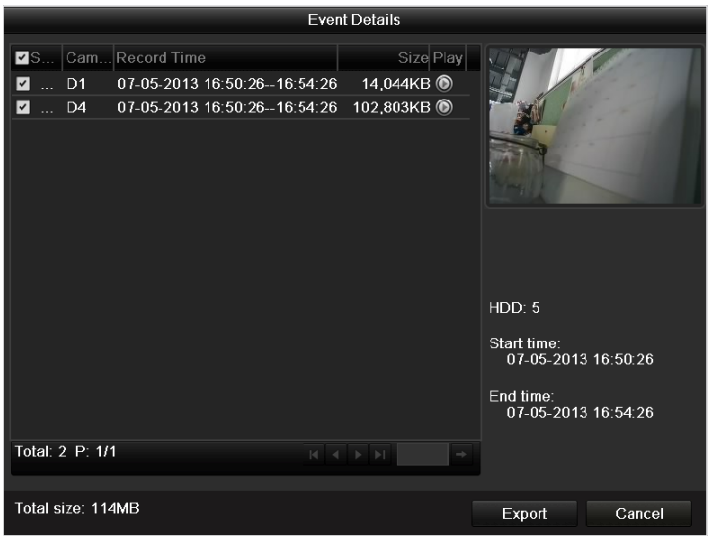


Figure 7. 13 Event Details Interface

3. Export.

Click Export and start backup.

Note: If the inserted USB device is not recognized:

- Click Refresh.
- Reconnect device.
- Check for compatibility from vendor.

You can also format USB flash drive or USB HDDs via the device.

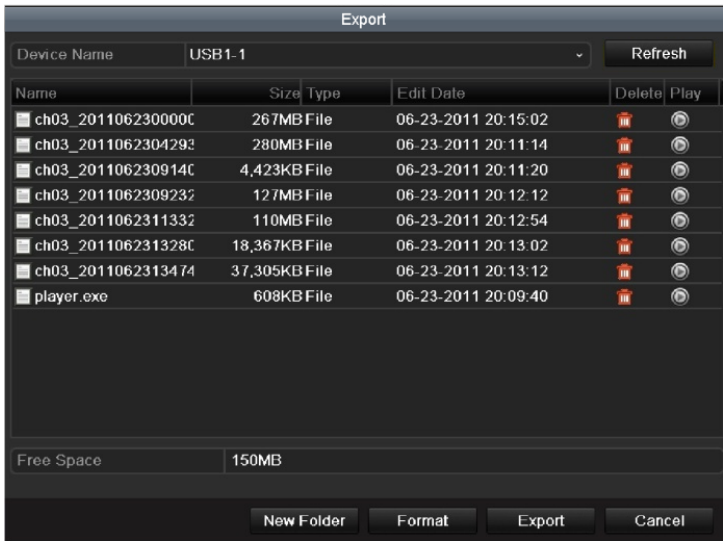


Figure 7. 14 Export by Event Using USB Flash Drive

Stay in the Exporting interface until all record files are exported with pop-up message “Export finished”.

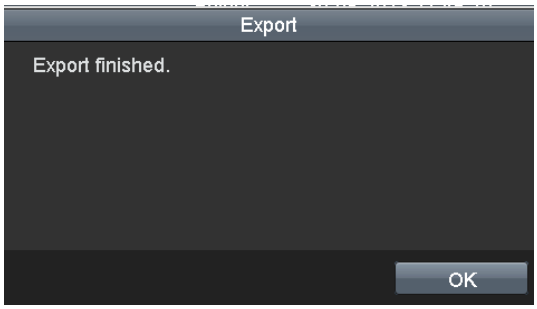


Figure 7. 15 Export Finished

4. Check backup result.

Note: The Player player.exe will be exported automatically during record file export.

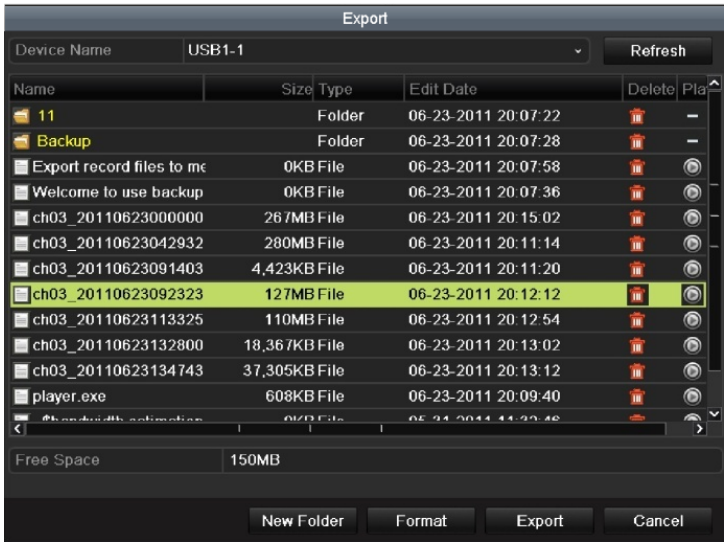


Figure 7. 16 Checkup of Event Export Result Using USB Flash Drive

7.1.4 Backing up Video Clips

Purpose:

You may also select video clips to export directly during Playback, using USB devices (USB flash drives, USB HDDs, USB writer), or DVD-R/W.

Steps:

1. Enter Playback interface and play back the record file you want to set video clips.
   Please refer to *Chapter 6.1 Playing Back Record Files*.
2. During playback, use buttons and in the playback toolbar to start or stop clipping record file(s).
3. Quit Playback interface after finishing clipping and you will then be prompted to save the clips.

   Note: A maximum of 30 clips can be selected for each channel.

Figure 7. 17 Interface of Playback by Time

4. Click Yes to save video clips and enter Export interface, or click **No** to quit and do not save video clips.

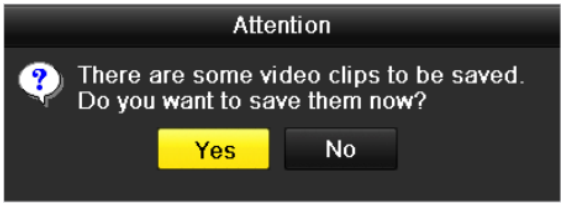


Figure 7. 18 Attention to Video Clip Saving

5. Export.

   Click Export and start backup.

   Note: If the inserted USB device is not recognized:

   - Click Refresh.
   - Reconnect device.
   - Check for compatibility from vendor.

   You can also format USB flash drive or USB HDDs via the device.

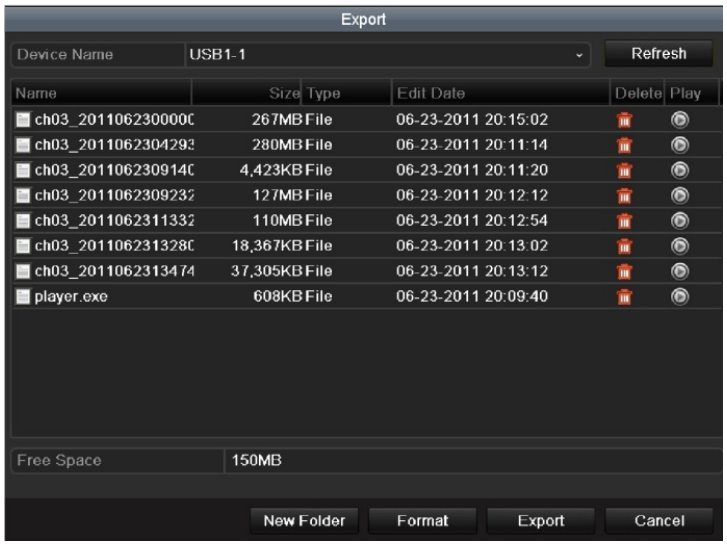


Figure 7. 19 Export Video Clips Using USB Flash Drive

Stay in the Exporting interface until all record files are exported with pop-up message “Export finished”.

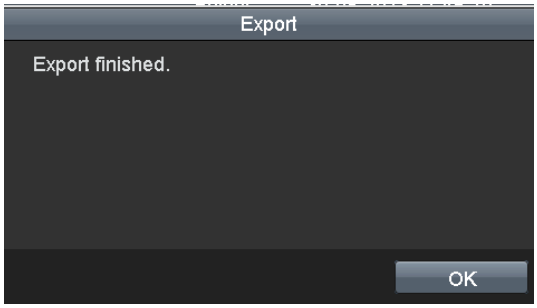


Figure 7. 20 Export Finished

6. Check backup result.

Note: The Player player.exe will be exported automatically during record file export.

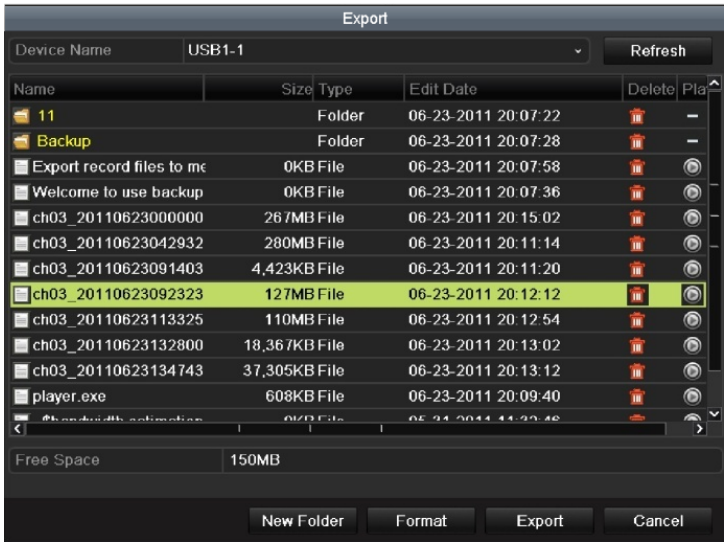


Figure 7. 21 Checkup of Video Clips Export Result Using USB Flash Drive

7.1.5 Backing up POS

Purpose:

Back up event-related record files using USB devices (USB flash drives, USB HDDs, USB writer), or DVD-R/W. Quick Backup and Normal Backup are supported.

Steps:

5. Enter Export interface.

Menu>Export>POS

1) Select Alarm Input/Motion from the dropdown list of Event Type.

Note: Here we take Alarm Input as an example.

2) Select the channels input No. and time. You can also enter keyword or condition in the textbox Match Approximate to search the text on your command.

3) Click Search to enter the Search Result interface.

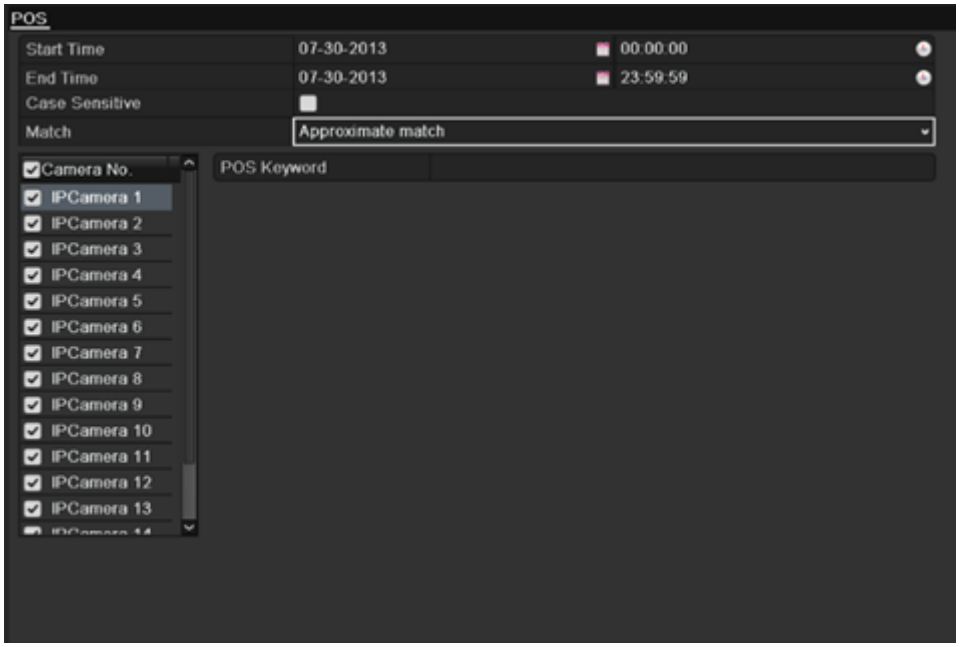


Figure 7. 22 POS Search for Backup

6. Select record files to export.

3) Select an alarm input in the list and click Quick Export to enter Export interface.

4) Clicking Details will take you to the interface with detailed information of all channels triggered by the selected alarm input. You can view detailed information of the record file, e.g. start time, end time and file size.

Note: The size of the currently selected files is displayed in the lower-left corner of the window.

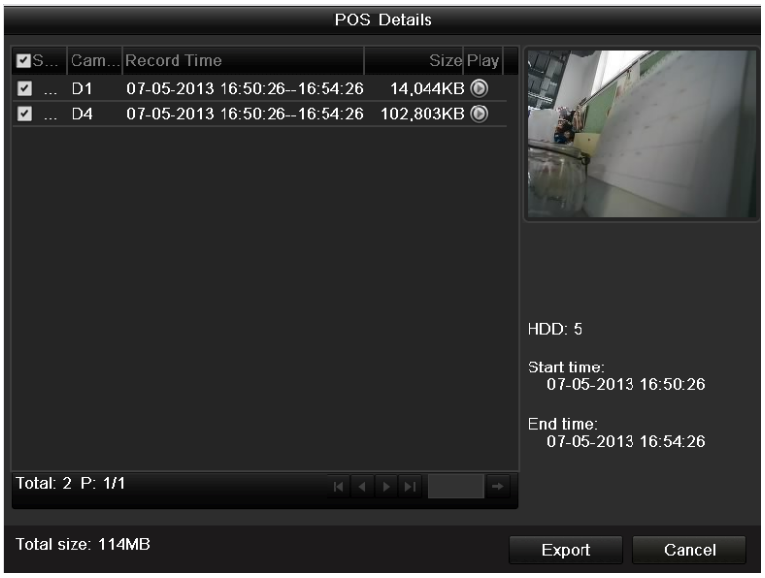


Figure 7. 23 POS Details Interface

7. Export.

Click Export and start backup.

Note: If the inserted USB device is not recognized:

- Click Refresh.
- Reconnect device.
- Check for compatibility from vendor.

You can also format USB flash drive or USB HDDs via the device.

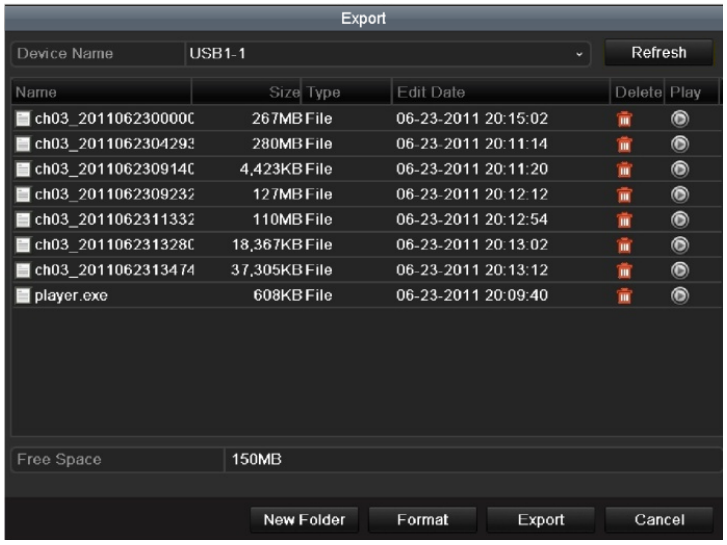


Figure 7. 24 Export by POS Using USB Flash Drive

Stay in the Exporting interface until all record files are exported with pop-up message “Export finished”.

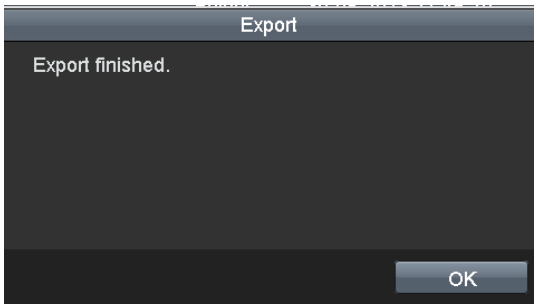


Figure 7. 25 Export Finished

8. Check backup result.

Note: The Player player.exe will be exported automatically during record file export.

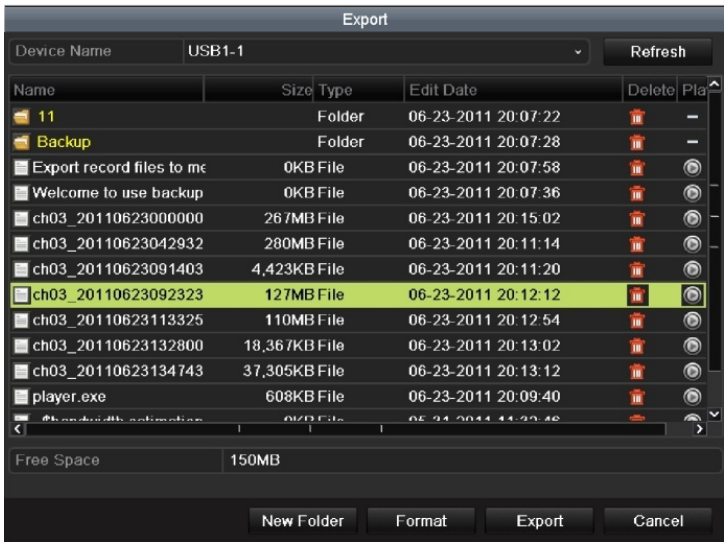


Figure 7. 26 Checkup of POS Export Result Using USB Flash Drive

7.2 Backing up Pictures

Purpose:

Back up pictures using USB devices (USB flash drives, USB HDDs, USB writer), SATA writer or eSATA HDD.

Steps:

1. Enter Export interface.

   Menu>Export>Picture

   Select channel(s), image type, start time and end time, and click **Search** button to enter the Search Result interface.

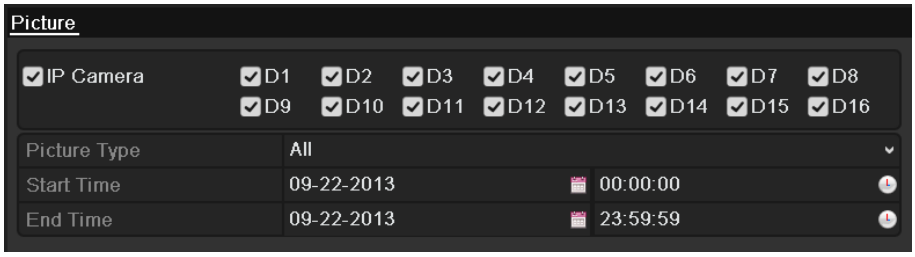


Figure 7. 27 Picture Search for Backup

2. Select pictures you want to back up.

   Check the checkbox before the pictures you want to back up and click **Export** button.

   Note: Here we take USB flash drive as an example. For more backup devices, please refer to *chapter* **错误！未找到引用源。**.

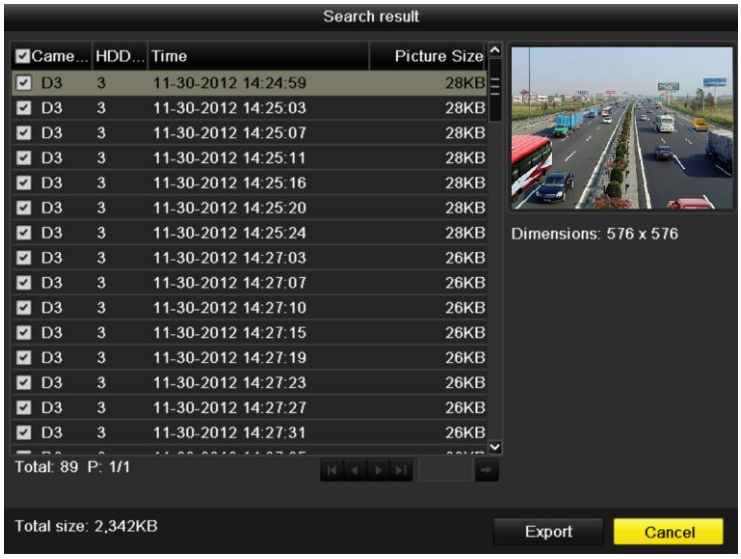


Figure 7. 28 Result of Picture Search

3. Export.

   Click **Export** button and start backup.

Figure 7. 29 Export Pictures Using USB Flash Drive

Stay in the Exporting interface until all record files are exported with pop-up message “Export finished”.

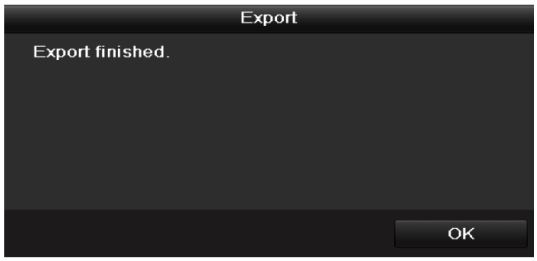


Figure 7. 30 Export Finished

4. Check backup result.

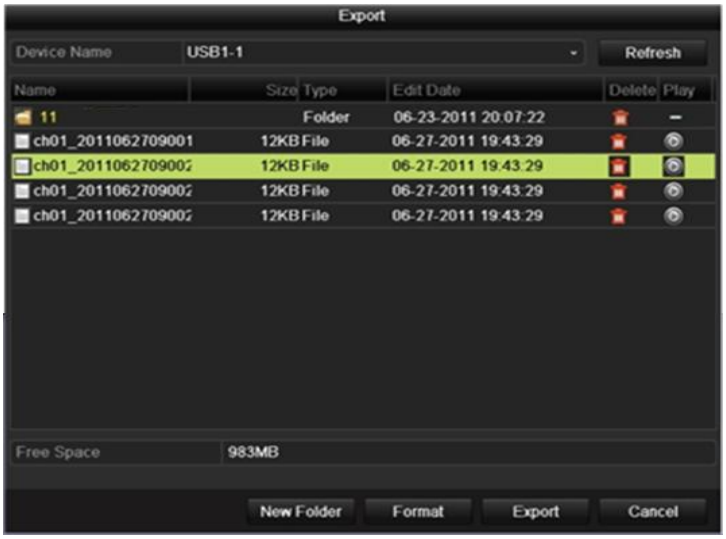


Figure 7. 31 Checkup of Picture Export Using USB Flash Drive

7.3 Managing Backup Devices

Management of USB flash drives, USB HDDs and eSATA HDDs.

1. Enter Search Result interface of record files.

   Menu>Export>Normal

   Set search condition and click **Search** button to enter Search Result interface.

   Note: At least one channel shall be selected.

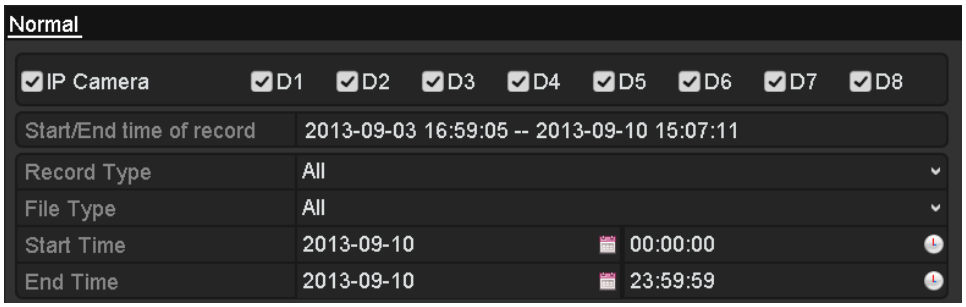


Figure 7. 32 Normal Video Search for Backup

2. Select record files you want to back up.

   Click **Export** button to enter Export interface.

   Note: At least one record file shall be selected.

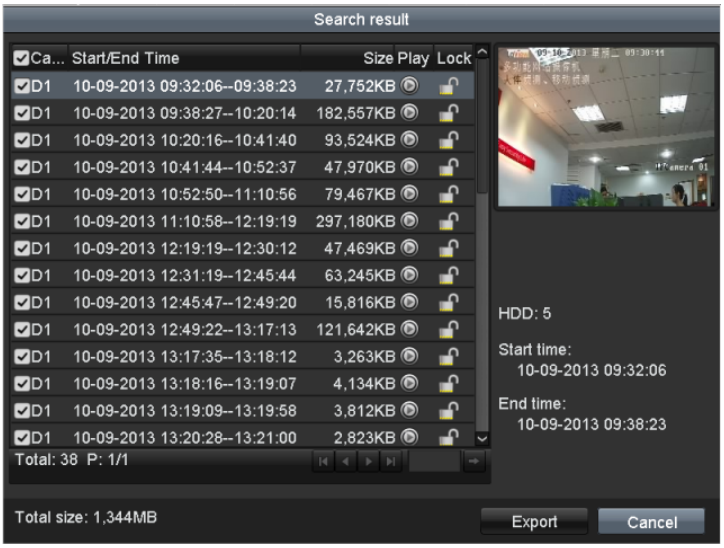


Figure 7. 33 Result of Normal Video Search for Backup

3. Backup device management.

   Click New Folder button if you want to create a new folder in the backup device.

   Select a record file or folder in the backup device and click button if you want to delete it.

   Select a record file in the backup device and click button to play it.

   Click **Format** button to format the backup device.

   Note: If the inserted USB device is not recognized:

- Click the **Refresh** button.
- Reconnect device.

- Check for compatibility from vendor.

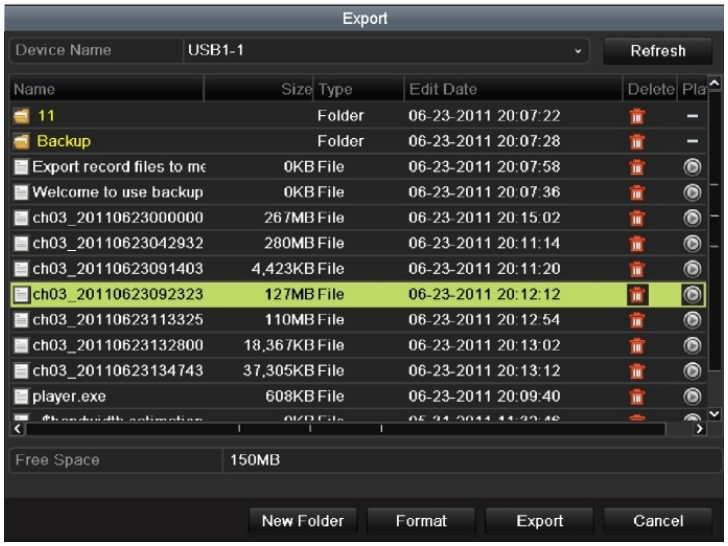


Figure 7. 34 USB Flash Drive Management

Management of USB writers and DVD-R/W

1. Enter Search Result interface of record files.

Menu>Export>Normal

Set search condition and click **Search** button to enter Search Result interface.

Note: At least one channel shall be selected.

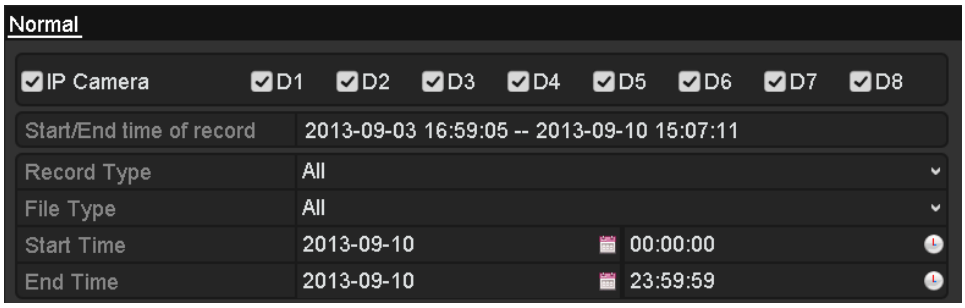


Figure 7. 35 Normal Video Search for Backup

2. Select record files you want to back up.

Click **Export** button to enter Export interface.

Note: At least one record file shall be selected.

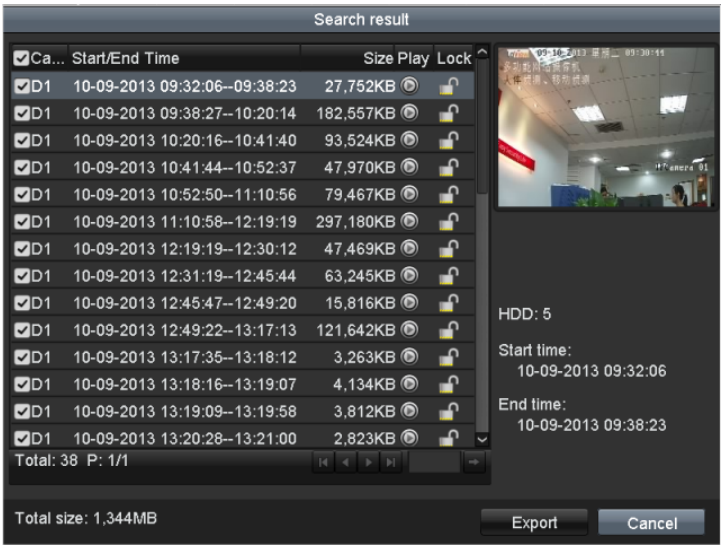


Figure 7. 36 Result of Normal Video Search for Backup

3. Backup device management.

Click **Erase** button if you want to erase the files from a re-writable CD/DVD.

Note: There must be a re-writable CD/DVD when you make this operation.

Note: If the inserted USB writer or DVD-R/W is not recognized:

- Click the **Refresh** button.
- Reconnect device.
- Check for compatibility from vendor.

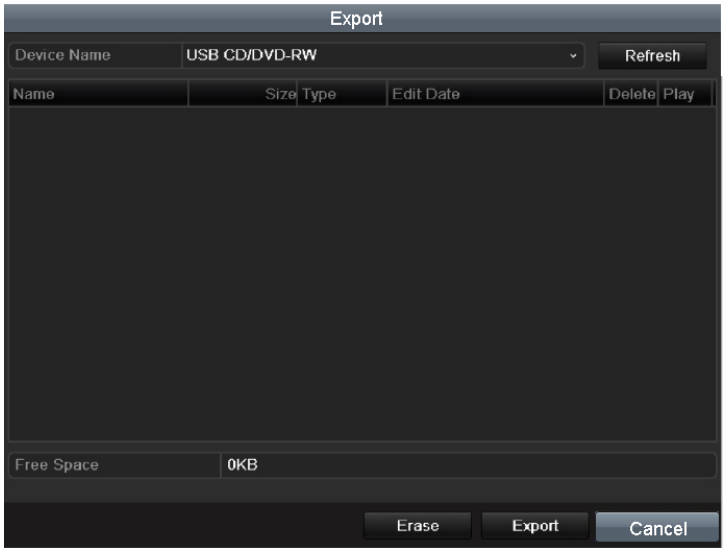


Figure 7. 37 USB Writer Management

Chapter 8 Alarm Settings

8.1 Setting Motion Detection Alarm

Steps:

1. Enter Motion Detection interface of Camera Management and choose a camera you want to set up motion detection.

   Menu> Camera> Motion

Figure 8. 1 Motion Detection Setup Interface

2. Set up detection area and sensitivity.

   Tick "Enable Motion Detection", use the mouse to draw detection area(s) and drag the sensitivity bar to set sensitivity.

   Click button and set alarm response actions.

3. Click **Trigger Channel** tab and select one or more channels which will start to record/capture or become full-screen monitoring when motion alarm is triggered, and click **Apply** to save the settings.

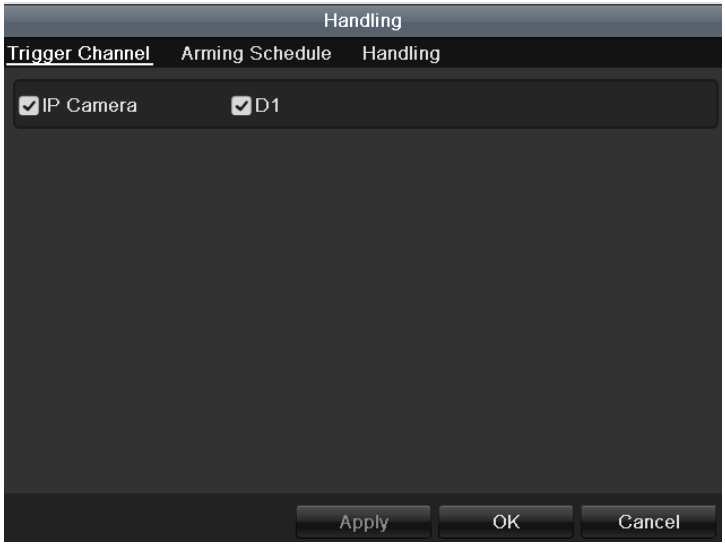


Figure 8. 2 Set Trigger Camera of Motion Detection

4. Set up arming schedule of the channel.

   1) Select Arming Schedule tab to set the arming schedule of handling methods for the motion detection.

   2) Choose one day of a week and up to eight time periods can be set within each day.

   3) Click **Apply** to save the settings

   Note: Time periods shall not be repeated or overlapped.

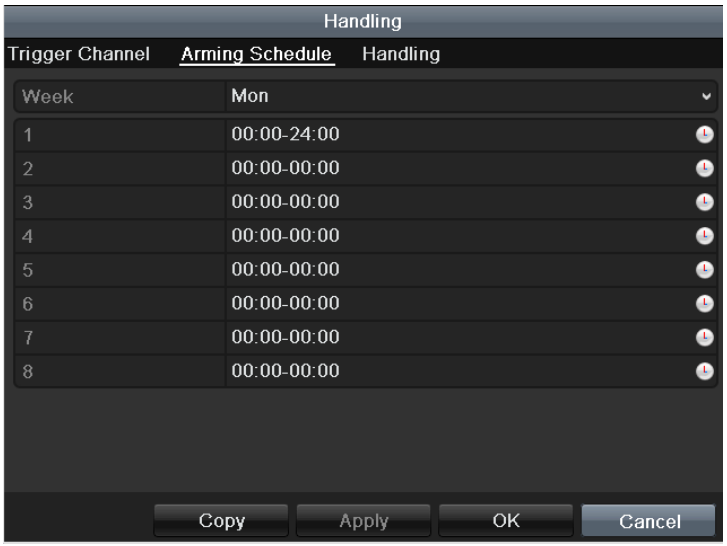


Figure 8. 3 Set Arming Schedule of Motion Detection

5. Click **Handling** tab to set up alarm response actions of motion alarm (please refer to *Chapter Setting Alarm Response Actions*).
6. If you want to set motion detection for another channel, repeat the above steps or just click **Copy** in the Motion Detection interface to copy the above settings to it.

8.2 Setting Sensor Alarms

Purpose:

Set the handling method of an external sensor alarm.

Steps:

1. Enter Alarm Settings of System Configuration and select an alarm input.

   Menu> Configuration> Alarm

   Select Alarm Input tab to enter Alarm Input Settings interface.

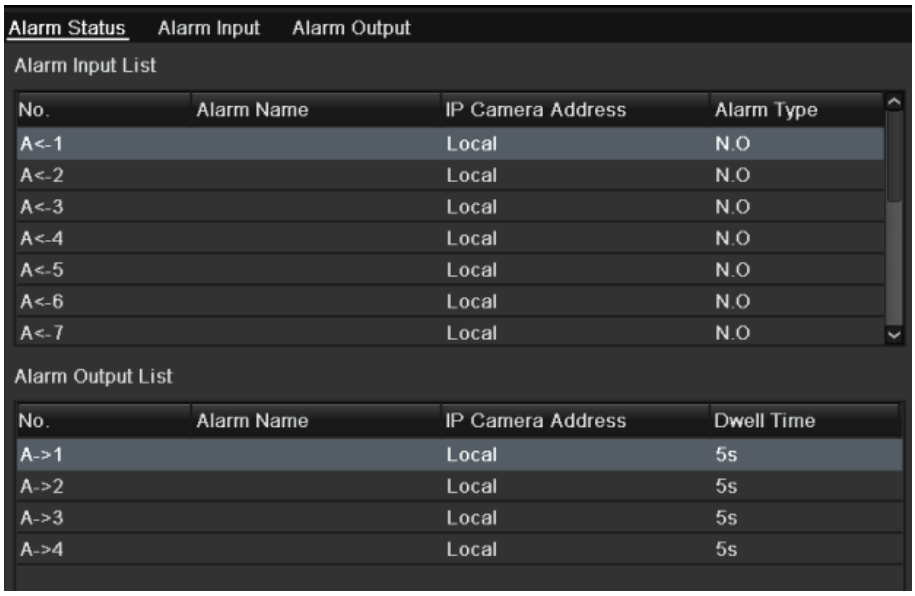


Figure 8. 4 Alarm Status Interface of System Configuration

2. Set up the handling method of the selected alarm input.

   Check the **Setting** checkbox and click **Handling** button to set up its alarm response actions.

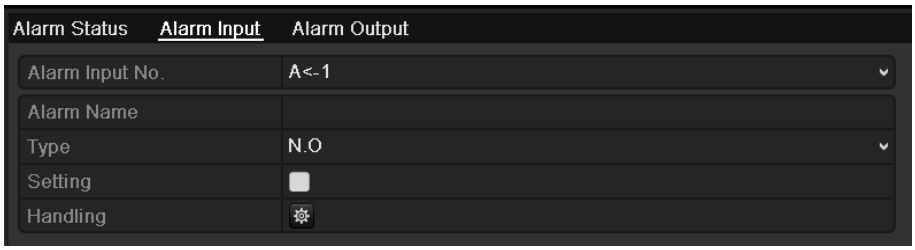


Figure 8. 5 Alarm Input Setup Interface

3. Select Trigger Channel tab and select one or more channels which will start to record/capture or become full-screen monitoring when an external alarm is input, and click **Apply** to save the settings.
4. Select **Arming Schedule** tab to set the arming schedule of handling methods

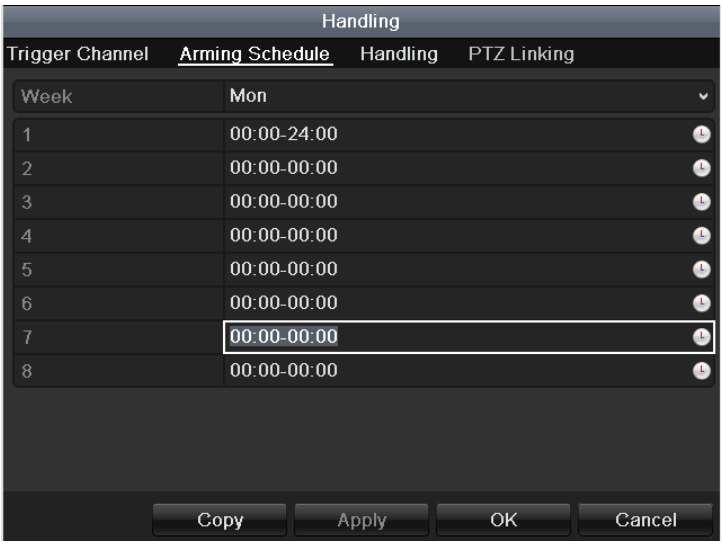


Figure 8. 6 Set Arming Schedule of Alarm Input

Choose one day of a week and Max. eight time periods can be set within each day, and click **Apply** to save the settings.

Note: Time periods shall not be repeated or overlapped.

Repeat the above steps to set up arming schedule of other days of a week. You can also use **Copy** button to copy an arming schedule to other days.

5. Select **Handling** tab to set up alarm response actions of the alarm input (please refer to *Chapter Setting Alarm Response Actions*).
6. If necessary, select PTZ Linking tab and set PTZ linkage of the alarm input.

   Set PTZ linking parameters and click **OK** to complete the settings of the alarm input.

   Note: Please check whether the PTZ or speed dome supports PTZ linkage.

   One alarm input can trigger presets, patrol or pattern of more than one channel. But presets, patrols and patterns are exclusive.

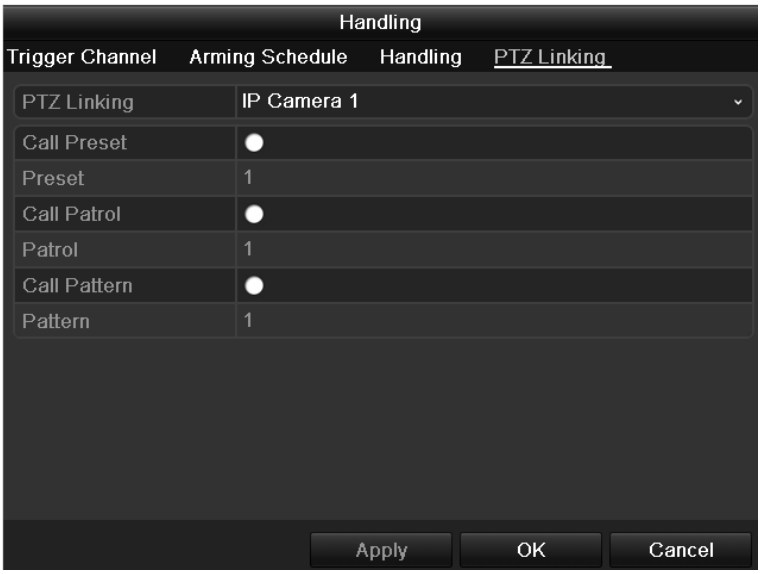


Figure 8. 7 Set PTZ Linking of Alarm Input

7. If you want to set handling method of another alarm input, repeat the above steps.

Or you can click the Copy button on the Alarm Input Setup interface and check the checkbox of alarm inputs to copy the settings to them.

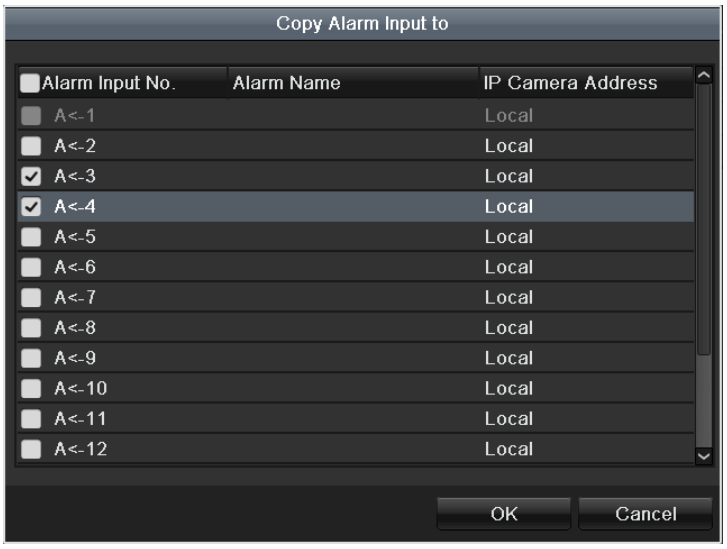


Figure 8. 8 Copy Settings of Alarm Input

8.3 Detecting Video Loss Alarm

Purpose:

Detect video loss of a channel and take alarm response action(s).

Steps:

1. Enter Video Loss interface of Camera Management and select a channel you want to detect.

   Menu> Camera> Video Loss

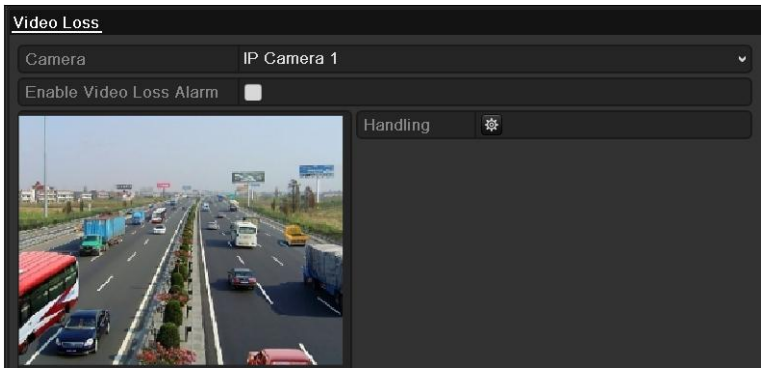


Figure 8. 9 Video Loss Setup Interface

2. Set up handling method of video loss.

   Check the checkbox of "Enable Video Loss Alarm", and click button to set up handling method of video loss.

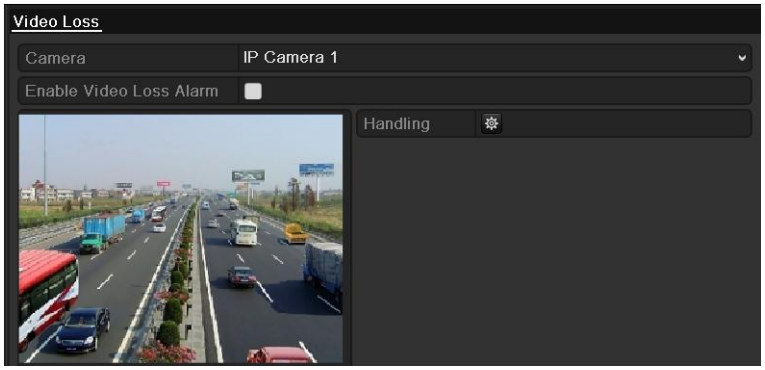


Figure 8. 10 Set Handling Method of Video Loss

3. Set up arming schedule of the handling methods.

   1) Select Arming Schedule tab to set the channel's arming schedule.

   2) Choose one day of a week and up to eight time periods can be set within each day.

   3) Click **Apply** button to save the settings.

   Note: Time periods shall not be repeated or overlapped.

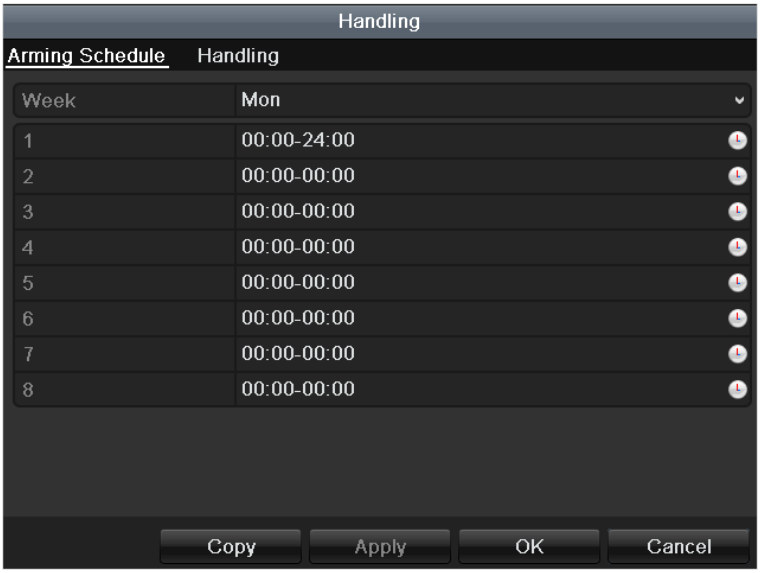


Figure 8. 11 Set Arming Schedule of Video Loss

4. Select **Handling** tab to set up alarm response action of video loss (please refer to *Chapter Setting Alarm Response Actions*).
5. Click the **OK** button to complete the video loss settings of the channel.

8.4 Detecting Video Tampering Alarm

Purpose:

Trigger alarm when the lens is covered and take alarm response action(s).

Steps:

1. Enter Video Tampering interface of Camera Management and select a channel you want to detect video tampering.

   Menu> Camera> Tamper-proof

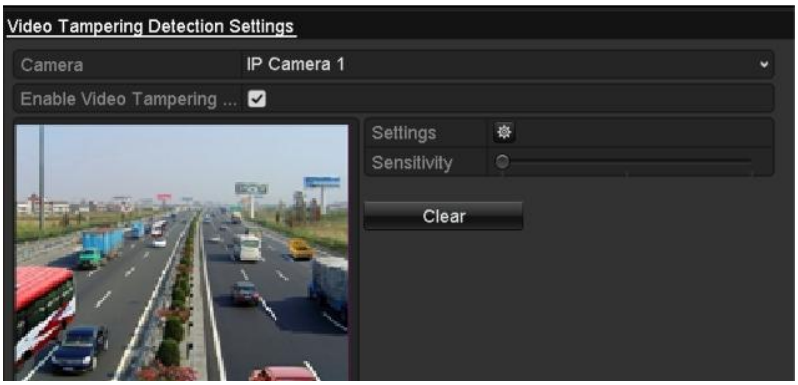


Figure 8. 12 Tamper-proof Setup Interface

2. Set the video tampering handling method of the channel.

   Check the checkbox of "Enable Tamper-proof".

   Drag the sensitivity bar and choose a proper sensitivity level. Use the mouse to draw an area you want to detect video tampering.

   Click button to set up handling method of video tampering.

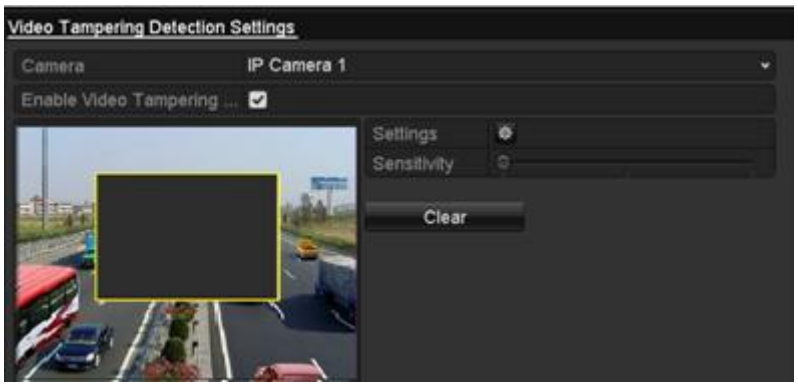


Figure 8. 13 Set Detection Area and Sensitivity of Video Tampering

3. Set arming schedule and alarm response actions of the channel.

   1) Click Arming Schedule tab to set the arming schedule of handling methods.

   2) Choose one day of a week and Max. eight time periods can be set within each day.

   3) Click **Apply** button to save the settings.

   Note: Time periods shall not be repeated or overlapped.

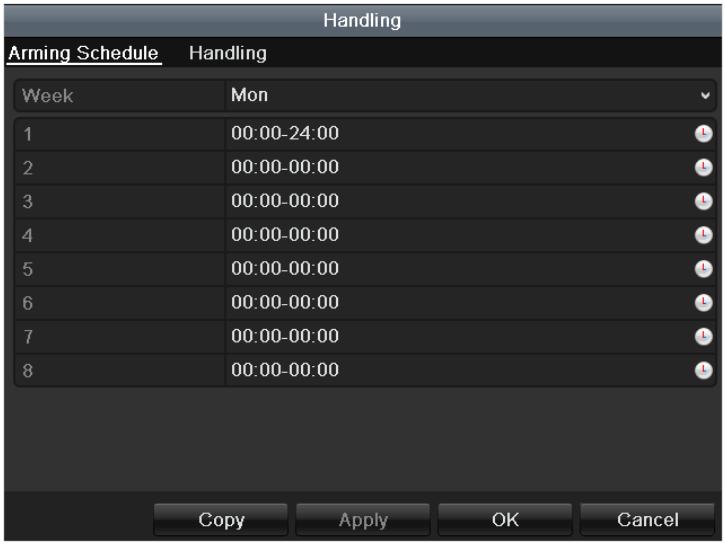


Figure 8. 14 Set Arming Schedule of Video Tampering

4. Select **Handling** tab to set up alarm response actions of video tampering alarm (please refer to *Chapter Setting Alarm Response Actions*).
5. Click the **OK** button to complete the video tampering settings of the channel.

8.5 Handling Exceptions Alarm

Purpose:

Exception settings refer to the handling method of various exceptions, e.g.

- **HDD Full:** The HDD is full.
- **HDD Error:** Writing HDD error or unformatted HDD.
- **Network Disconnected:** Disconnected network cable.
- **IP Conflicted:** Duplicated IP address.
- **Illegal Login:** Incorrect user ID or password.
- **Abnormal Record/Capture:** No space for saving recorded files or captured images.

Steps:

Enter Exception interface of System Configuration and handle various exceptions.

Menu> Configuration> Exceptions

Please refer to *Chapter Setting Alarm Response Actions* for detailed alarm response actions.

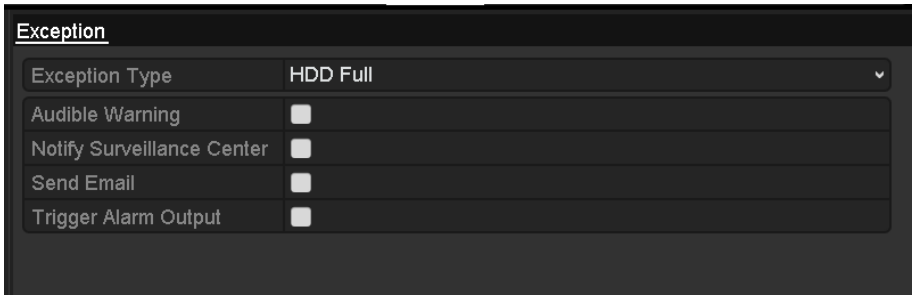


Figure 8. 15 Exceptions Setup Interface

8.6 Setting Alarm Response Actions

Purpose:

Alarm response actions will be activated when an alarm or exception occurs, including Full Screen Monitoring, Audible Warning (buzzer), Notify Surveillance Center, Upload Picture to FTP, Trigger Alarm Output and Send Email.

Full Screen Monitoring

When an alarm is triggered, the local monitor (VGA, HDMI or BNC monitor) display in full screen the video image from the alarming channel configured for full screen monitoring.

If alarms are triggered simultaneously in several channels, their full-screen images will be switched at an interval of 10 seconds (default dwell time). A different dwell time can be set by going to Menu >Configuration>Live View > Full Screen Monitoring Dwell Time.

Auto-switch will terminate once the alarm stops and you will be taken back to the Live View interface.

Note: You must select during "Trigger Channel" settings the channel(s) you want to make full screen monitoring.

Audible Warning

Trigger an audible *beep* when an alarm is detected.

Notify Surveillance Center

Sends an exception or alarm signal to remote alarm host when an event occurs. The alarm host refers to the PC installed with Remote Client.

Note: The alarm signal will be transmitted automatically at detection mode when remote alarm host is configured. Please refer to *Chapter Configuring Remote Alarm Host* for details of alarm host configuration.

Email Linkage

Send an email with alarm information to a user or users when an alarm is detected.

Please refer to *Chapter Configuring Email* for details of Email configuration.

Trigger Alarm Output

Trigger an alarm output when an alarm is triggered.

1. Enter Alarm Output interface.

   Menu> Configuration> Alarm> Alarm Output

   Select an alarm output and set alarm name and dwell time. Click **Schedule** button to set the arming schedule of alarm output.

   Note: If "Manually Clear" is selected in the dropdown list of Dwell Time, you can clear it only by going to Menu> Manual> Alarm.

Figure 8. 16 Alarm Output Setup Interface

2. Set up arming schedule of the alarm output.

   Choose one day of a week and up to 8 time periods can be set within each day.

   Note: Time periods shall not be repeated or overlapped.

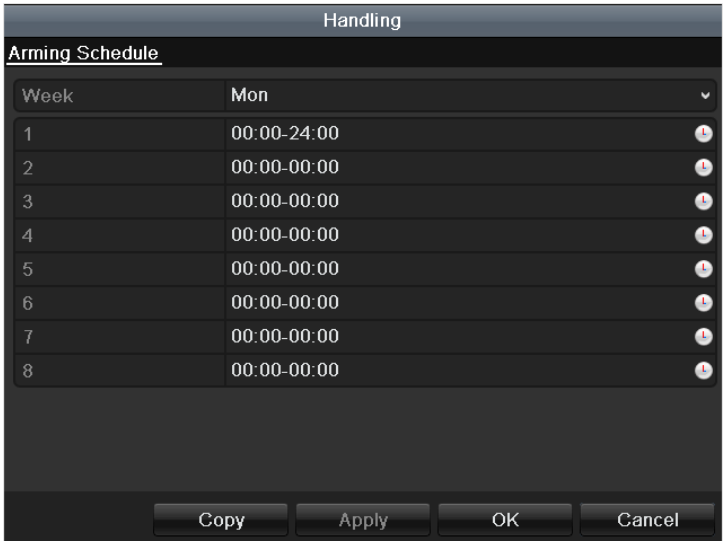


Figure 8. 17 Set Arming Schedule of Alarm Output

3. Repeat the above steps to set up arming schedule of other days of a week. You can also use **Copy** button to copy an arming schedule to other days.

   Click the **OK** button to complete the video tampering settings of the alarm output No.

4. You can also copy the above settings to another channel.

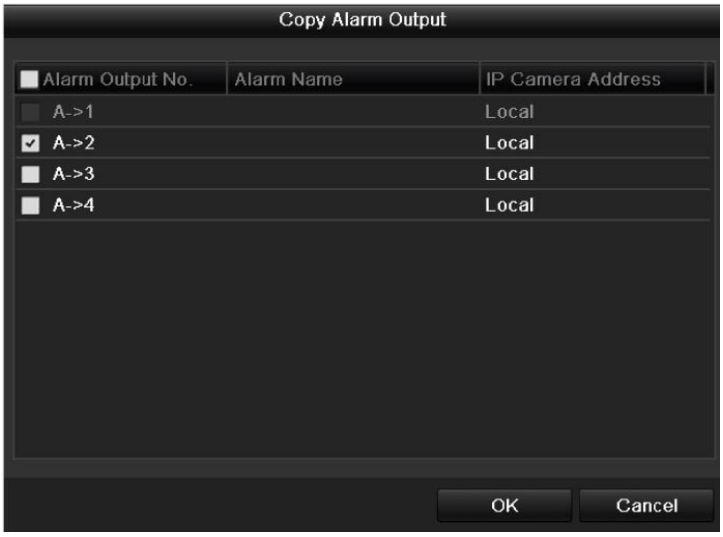


Figure 8. 18 Copy Settings of Alarm Output

8.7 Triggering or Clearing Alarm Output Manually

Purpose:

Sensor alarm can be triggered or cleared manually. If "Manually Clear" is selected in the dropdown list of dwell time of an alarm output, the alarm can be cleared only by clicking **Clear** button in the following interface.

Steps:

Select the alarm output you want to trigger or clear and make related operations.

Menu> Manual> Alarm

Click **Trigger/Clear** button if you want to trigger or clear an alarm output.

Click **Trigger All** button if you want to trigger all alarm outputs.

Click **Clear All** button if you want to clear all alarm output.

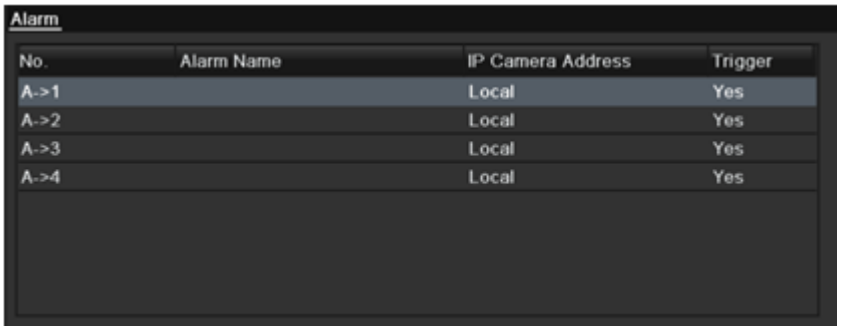


Figure 8. 19 Clear or Trigger Alarm Output Manually

Chapter 9 Network Settings

9.1 Configuring General Settings

Purpose:

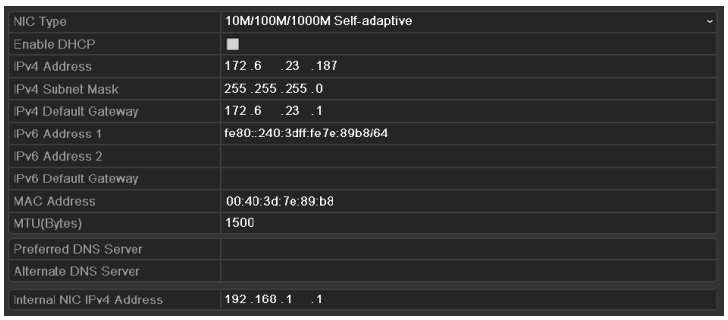
Network settings must be properly configured before you operate NVR over network.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration>Network

2. Select the **General** tab.



LV-N99xx

Figure 9. 1 Network Settings Interface

3. In the **General Settings** interface, you can configure the following settings: Working Mode, NIC Type, IPv4 Address, IPv4 Gateway, MTU and DNS Server.

   If the DHCP server is available, you can click the checkbox of **DHCP** to automatically obtain an IP address and other network settings from that server.

   Note: For the LV-N99xx series NVR, you need to configure the internal NIC address, so that IP addresses are assigned to the cameras connected to the PoE interfaces.

   Note: The valid value range of MTU is 500 ~ 9676.

4. After having configured the general settings, click Apply to save the settings.

Multi-address Mode: The parameters of the two NIC cards can be configured independently. You can select LAN1 or LAN2 in the NIC type field for parameter settings.

You can select one NIC card as default route. And then the system is connecting with the extranet the data will be forwarded through the default route.

Net-fault Tolerance Mode: The two NIC cards use the same IP address, and you can select the Main NIC to LAN1 or LAN2. By this way, in case of one NIC card failure, the device will automatically enable the other standby NIC card so as to ensure the normal running of the whole system.

Load Balance Mode: By using the same IP address and two NIC cards share the load of the total bandwidth, which enables the system to provide two Gigabit network capacity.

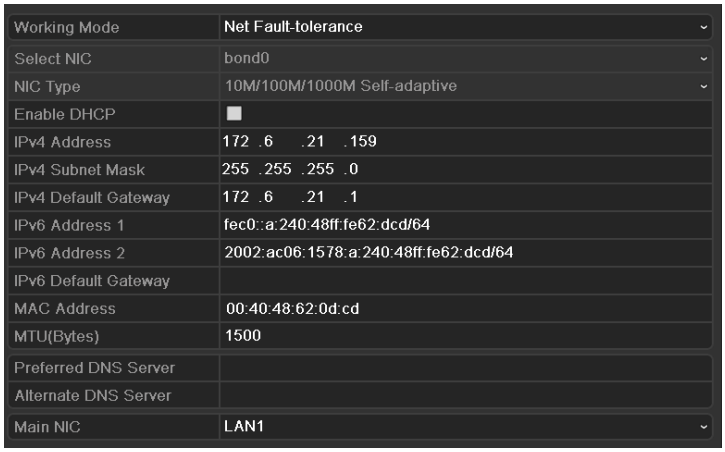


Figure 9. 2 Net Fault-tolerance Working Mode

9.2 Configuring Advanced Settings

9.2.1 Configuring PPPoE Settings

Purpose:

Your NVR also allows access by Point-to-Point Protocol over Ethernet (PPPoE).

Steps:

1. Enter the **Network Settings** interface.
   Menu >Configuration> Network
2. Select the **PPPoE** tab to enter the PPPoE Settings interface, as shown in Figure 9. 3.

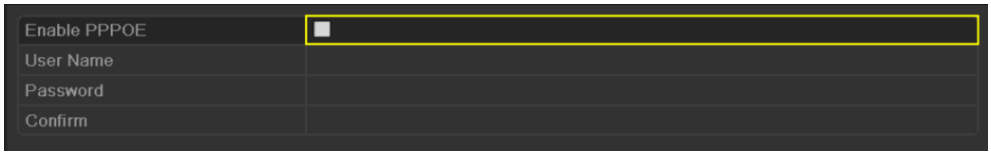


Figure 9. 3 PPPoE Settings Interface

3. Check the **PPPoE** checkbox to enable this feature.
4. Enter **User Name**, **Password**, and **Confirm Password** for PPPoE access.

Note: The User Name and Password should be assigned by your ISP.

5. Click Apply to save and exit the interface.
6. After successful settings, the system asks you to reboot the device to enable the new settings, and the PPPoE dial-up is automatically connected after reboot.

You can go to Menu >Maintenance>System Info >Network interface to view the status of PPPoE connection.

Please refer to *Chapter Viewing System Information* for PPPoE status.

9.2.2 Configuring DDNS

Purpose:

If your NVR is set to use PPPoE as its default network connection, you may set Dynamic DNS (DDNS) to be used for network access.

Prior registration with your ISP is required before configuring the system to use DDNS.

Steps:

1. Enter the Network Settings interface.
   Menu >Configuration> Network
2. Select the **DDNS** tab to enter the DDNS Settings interface, as shown in Figure 9. 4.

Figure 9. 4 DDNS Settings Interface

3. Check the **DDNS** checkbox to enable this feature.
4. Select **DDNS Type**. Five different DDNS types are selectable: IPServer, DynDNS, PeanutHull, NO-IP and EasyDDNS.

- **IPServer:** Enter **Server Address** for IPServer.

Figure 9. 5 IPServer Settings Interface

- **DynDNS:**
  1) Enter **Server Address** for DynDNS (i.e. members.dyndns.org).
  2) In the NVR Domain Name text field, enter the domain obtained from the DynDNS website.
  3) Enter the **User Name** and **Password** registered in the DynDNS website.

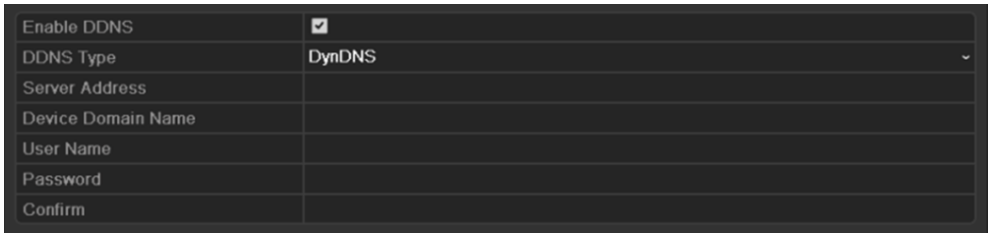


Figure 9. 6 DynDNS Settings Interface

- **PeanutHull:** Enter the **User Name** and **Password** obtained from the PeanutHull website.

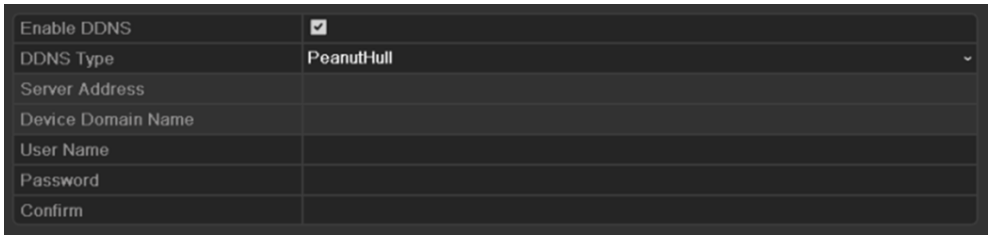


Figure 9. 7 PeanutHull Settings Interface

- **NO-IP:**

  Enter the account information in the corresponding fields. Refer to the DynDNS settings.

  1) Enter **Server Address** for NO-IP.

2) In the NVR Domain Name text field, enter the domain obtained from the NO-IP website (www.no-ip.com).
3) Enter the **User Name** and **Password** registered in the NO-IP website.

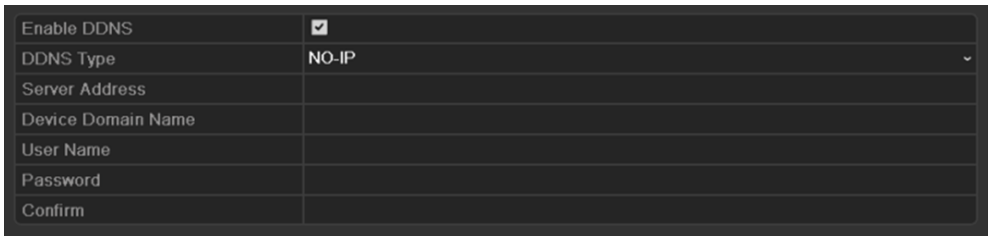


Figure 9. 8 NO-IP Settings Interface

- **HiDDNS:**

1) The **Server Address** of the HiDDNS server appears by default: www.hiddns.com.
2) Enter the **Device Domain Name.** You can use the alias you registered in the HiDDNS server or define a new device domain name. If a new alias of the device domain name is defined in the NVR, it will replace the old one registered on the server. You can register the alias of the device domain name in the HiDDNS server first and then enter the alias to the **Device Domain Name** in the NVR; you can also enter the domain name directly on the NVR to create a new one.

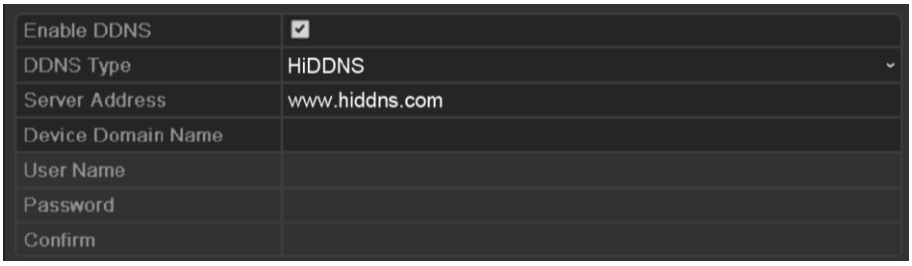


Figure 9. 9 HiDDNS Settings Interface

Register the device on the HiDDNS server.

1) Go to the HiDDNS website: www.hiddns.com.
2) Click Register new user to register an account if you do not have one and use the account to log in.

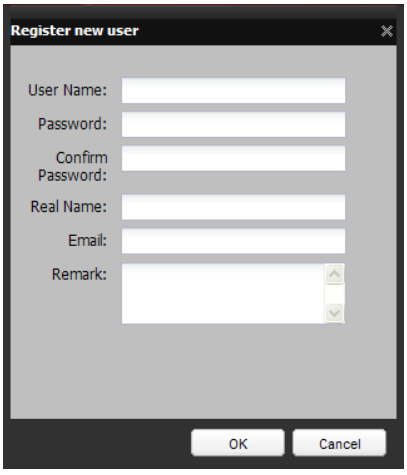


Figure 9. 10 Register an Account

3) In the Device Management interface, click Add to register the device.

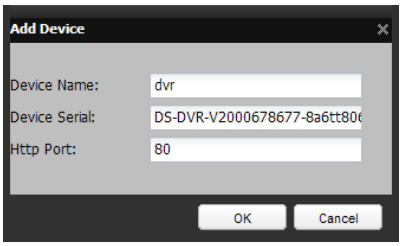


Figure 9. 11 Register the Device

Note: The device name can only contain the lower-case English letter, numeric and '-'; and it must start with the lower-case English letter and cannot end with '-'.

Access the Device via Web Browser or Client Software

After having successfully registered the device on the HiDDNS server, you can access your device via web browser or Client Software with the **Device Domain Name** (**Device Name**).

Task 1: Access the Device via Web Browser

Open a web browser, and enter *http://www.hiddns.com/alias* in the address bar. Alias refers to the **Device Domain Name** on the device or the **Device Name** on the HiDDNS server**.**

Example: *http://www.hiddns.com/nvr*

Note: If you mapped the HTTP port on your router and changed it to port No. except 80, you have to enter *http://www.hiddns.com/alias:HTTP port* in the address bar to access the device. You can refer to *Chapter 9.2.10* for the mapped HTTP port No.

Task 2: Access the devices via NVMS7000

For NVMS7000, in the Add Device window, select HiDDNS and then edit the device information.

Nickname: Edit a name for the device as you want.

Server Address: www.hiddns.com

Device Domain Name: It refers to the **Device Domain Name** on the device or the **Device Name** on the HiDDNS server you created**.**

User Name: Enter the user name of the device. By default it is admin.

Password: Enter the password of the device. By default it is 12345.

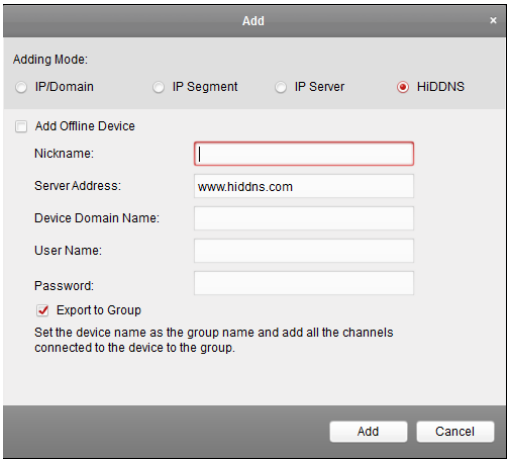


Figure 9. 12 Access Device via NVMS7000

- **LTS:**

  Enter the **Server Address** and **Device Domain Name** for LTS.

  1) Enter the **Server Address** of the LTS server, which is ns1.dvrlist.com by default.

  2) Enter the **Device Domain Name.** You can use the alias you registered in the LTS server or define a new device domain name. If a new alias of the device domain name is defined in the NVR, it will replace the old one registered on the server. You can register the alias of the device domain name in the LTS server first and then enter the alias to the **Device Domain Name** in the NVR; you can also enter the domain name directly on the NVR to create a new one.

Figure 9. 13 LTS Settings Interface

5. Click **Apply** button to save and exit the interface.

9.2.3 Configuring NTP Server

Purpose:

A Network Time Protocol (NTP) Server can be configured on your NVR to ensure the accuracy of system date/time.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **NTP** tab to enter the NTP Settings interface, as shown in Figure 9. 14.

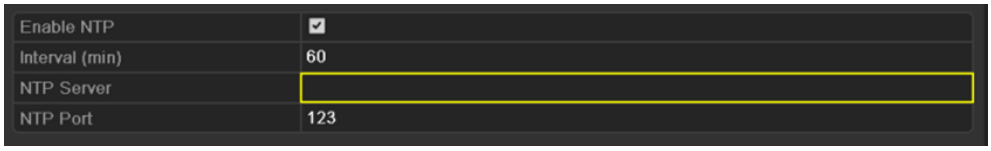


Figure 9. 14 NTP Settings Interface

3. Check the **Enable NTP** checkbox to enable this feature.
4. Configure the following NTP settings:
   - **Interval:** Time interval between the two synchronizing actions with NTP server. The unit is minute.
   - **NTP Server:** IP address of NTP server.
   - **NTP Port:** Port of NTP server.
5. Click Apply to save and exit the interface.

Note: The time synchronization interval can be set from1 to 10080min, and the default value is 60min. If the NVR is connected to a public network, you should use a NTP server that has a time synchronization function, such as the server at the National Time Center (IP Address: 210.72.145.44). If the NVR is setup in a more customized

network, NTP software can be used to establish a NTP server used for time synchronization.

9.2.4 Configuring SNMP

Purpose:

You can use SNMP protocol to get device status and parameters related information.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **SNMP** tab to enter the SNMP Settings interface, as shown in Figure 9. 15.

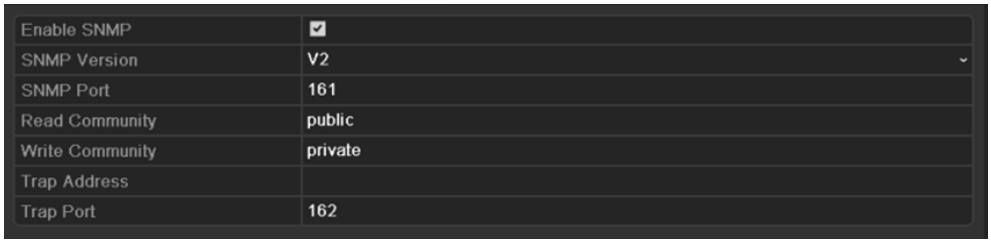


Figure 9. 15 SNMP Settings Interface

3. Check the **SNMP** checkbox to enable this feature.
4. Configure the following SNMP settings:
   - **Trap Address:** IP Address of SNMP host.
   - **Trap Port:** Port of SNMP host.
5. Click Apply to save and exit the interface.

Note: Before setting the SNMP, please download the SNMP software and manage to receive the device information via SNMP port. By setting the Trap Address, the NVR is allowed to send the alarm event and exception message to the surveillance center.

9.2.5 Configuring Remote Alarm Host

Purpose:

With a remote alarm host configured, the NVR will send the alarm event or exception message to the host when an alarm is triggered. The remote alarm host must have the Network Video Surveillance software installed.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings interface, as shown in Figure 9. 16.

Figure 9. 16 More Settings Interface

3. Enter **Alarm Host IP** and **Alarm Host Port** in the text fields.

   The **Alarm Host IP** refers to the IP address of the remote PC on which the Network Video Surveillance Software (e.g., NVMS7000) is installed, and the **Alarm Host Port** must be the same as the alarm monitoring port configured in the software.

Figure 9. 17 Configure Alarm Host

4. Click Apply to save and exit the interface.

9.2.6 Configuring Multicast

Purpose:

And for LV-N99xx NVR, using the multicast function, more than 64 cameras are connectable.

A multicast address spans the Class-D IP range of 224.0.0.0 to239.255.255.255. It is recommended to use the IP address ranging from 239.252.0.0 to 239.255.255.255.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings interface, as shown in Figure 9. 16.
3. Set **Multicast IP**, as shown in Figure 9. 18. When adding a device to the Network Video Surveillance Software, the multicast address must be the same as the NVR's multicast IP.

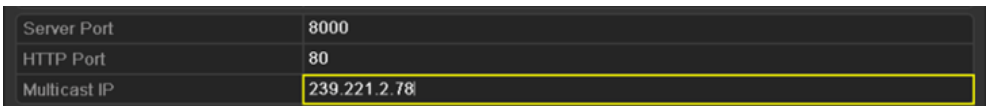


Figure 9. 18 Configure Multicast

4. Click Apply to save and exit the interface.

Note: The multicast function should be supported by the network switch to which the NVR is connected.

9.2.7 Configuring RTSP

Purpose:

The RTSP (Real Time Streaming Protocol) is a network control protocol designed for use in communication systems to control streaming media servers.

Steps:

1. Enter the Network Settings menu

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings menu, as shown in Figure 9. 16.

Figure 9. 19 RTSP Settings Interface

3. Enter the RTSP port in the text field of **RTSP Service Port**. The default RTSP port is 554, and you can change it according to different requirements.
4. Click Apply to save and exit the menu.

9.2.8 Configuring Server and HTTP Ports

Purpose:

You can change the server and HTTP ports in the Network Settings menu. The default server port is 8000 and the default HTTP port is 80.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings interface, as shown in Figure 9. 16.
3. Enter new **Server Port** and **HTTP Port**.

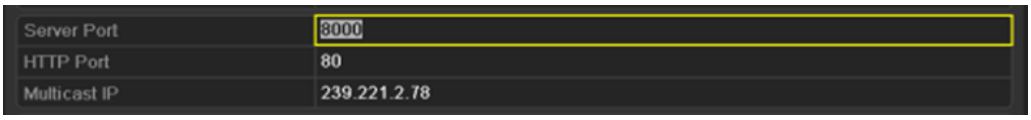


Figure 9. 20 Host/Others Settings Menu

4. Enter the Server Port and HTTP Port in the text fields. The default Server Port is 8000 and the HTTP Port is 80, and you can change them according to different requirements.
5. Click Apply to save and exit the interface.

Note: The Server Port should be set to the range of 2000-65535 and it is used for remote client software access. The HTTP port is used for remote IE access.

9.2.9 Configuring HTTPS Port

Purpose:

HTTPS provides authentication of the web site and associated web server that one is communicating with, which protects against Man-in-the-middle attacks. Perform the following steps to set the port number of https.

Example:

If you set the port number as 443 and the IP address is 192.0.0.64, you may access the device by inputting *https://192.0.0.64:443* via the web browser.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings interface, as shown in Figure 9. 16.
3. Check the checkbox of **Enable HTTPS**.

Figure 9. 21 HTTPS Settings Menu

4. Enter the **HTTPS Port**.
5. Click the **Apply** button to save and exit the interface.

9.2.10 Configuring Email

Purpose:

The system can be configured to send an Email notification to all designated users if an alarm event is detected, etc., an alarm or motion event is detected or the administrator password is changed.

Before configuring the Email settings, the NVR must be connected to a local area network (LAN) that maintains an SMTP mail server. The network must also be connected to either an intranet or the Internet depending on the location of the e-mail accounts to which you want to send notification.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Set the IPv4 Address, IPv4 Subnet Mask, IPv4 Gateway and the Preferred DNS Server in the Network Settings menu, as shown in Figure 9. 22.

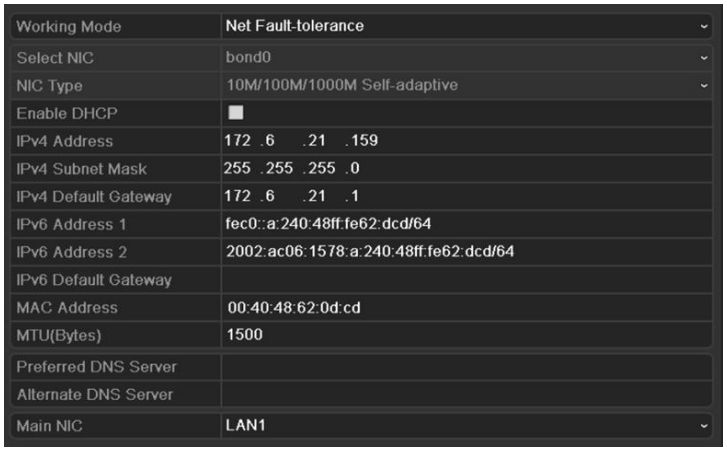


Figure 9. 22 Network Settings Interface

3. Click Apply to save the settings.
4. Select the Email tab to enter the Email Settings interface.

Figure 9. 23 Email Settings Interface

5. Configure the following Email settings:

   Enable Server Authentication (optional): Check the checkbox to enable the server authentication feature.

   User Name: The user account of sender's Email for SMTP server authentication.

   Password: The password of sender's Email for SMTP server authentication.

   SMTP Server: The SMTP Server IP address or host name (e.g., smtp.263xmail.com).

   SMTP Port No.: The SMTP port. The default TCP/IP port used for SMTP is 25.

   Enable SSL (optional): Click the checkbox to enable SSL if required by the SMTP server.

   Sender: The name of sender.

   Sender's Address: The Email address of sender.

   Select Receivers: Select the receiver. Up to 3 receivers can be configured.

   Receiver: The name of user to be notified.

   Receiver's Address: The Email address of user to be notified.

   Enable Attached Pictures: Check the checkbox of **Enable Attached Picture** if you want to send email with attached alarm images. The interval is the time of two adjacent alarm images. You can also set SMTP port and enable SSL here.

   Interval: The interval refers to the time between two actions of sending attached pictures.

   E-mail Test: Sends a test message to verify that the SMTP server can be reached.

6. Click Apply button to save the Email settings.

7. You can click Test to test whether your Email settings work. The corresponding Attention message box will pop up. Refer to Figure 9. 24.

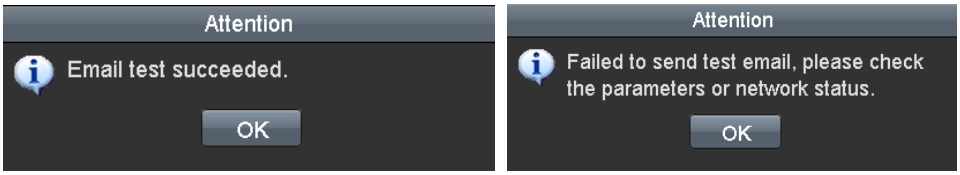


Figure 9. 24 Email Testing Attention

9.2.11 Configuring UPnP™

Purpose:

Universal Plug and Play (UPnP™) can permit the device seamlessly discover the presence of other network devices on the network and establish functional network services for data sharing, communications, etc. You can use the UPnP™ function to enable the fast connection of the device to the WAN via a router without port mapping.

Before you start:

If you want to enable the UPnP™ function of the device, you must enable the UPnP™ function of the router to which your device is connected. When the network working mode of the device is set as multi-address, the Default Route of the device should be in the same network segment as that of the LAN IP address of the router.

Steps:

1. Enter the Network Settings interface.
   Menu > Configuration > Network
2. Select the **UPnP** tab to enter the UPnP™ interface.

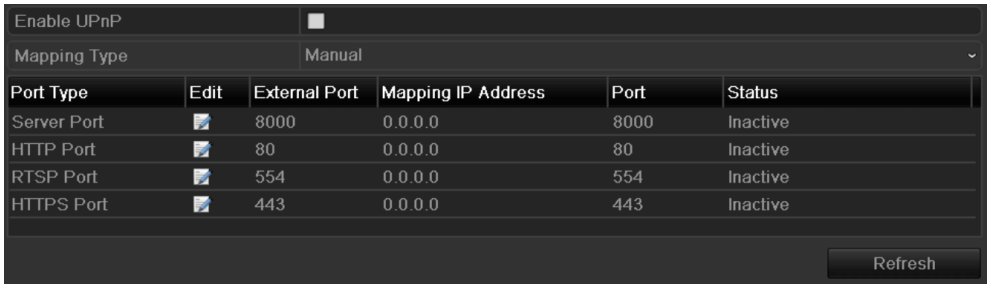


Figure 9. 25 UPnP™ Settings Interface

3. Check checkbox to enable UPnP™.
4. Select the Mapping Type as Manual or Auto in the drop-down list.

   Task1: Auto

   If you select Auto, the Port Mapping items are read-only, and the external ports are set by the router automatically.

   Steps:

   1) Click **Apply** button to save the settings.
   2) You can click **Refresh** button to get the latest status of the port mapping.

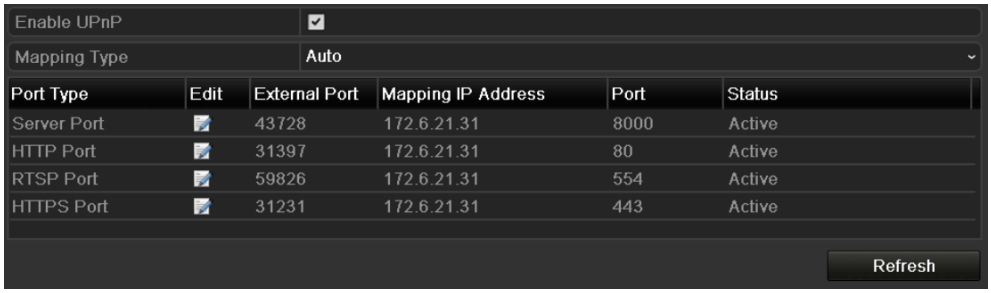


Figure 9. 26 UPnP™ Settings Finished-Auto

Task2: Manual

If you select Manual as the mapping type, you can edit the external port on your demand by clicking to activate the External Port Settings dialog box.

Steps:

1) Click to activate the External Port Settings dialog box. Configure the external port No. for server port, http port, RTSP port and https port respectively.

Notes:

1) You can use the default port No., or change it according to actual requirements.
2) External Port indicates the port No. for port mapping in the router.
3) The value of the RTSP port No. should be 554 or between 1024 and 65535, while the value of the other ports should be between 1 and 65535 and the value must be different from each other. If multiple

devices are configured for the UPnP™ settings under the same router, the value of the port No. for each device should be unique.

Figure 9. 27 External Port Settings Dialog Box

2) Click **Apply** button to save the settings.

3) You can click **Refresh** button to get the latest status of the port mapping.

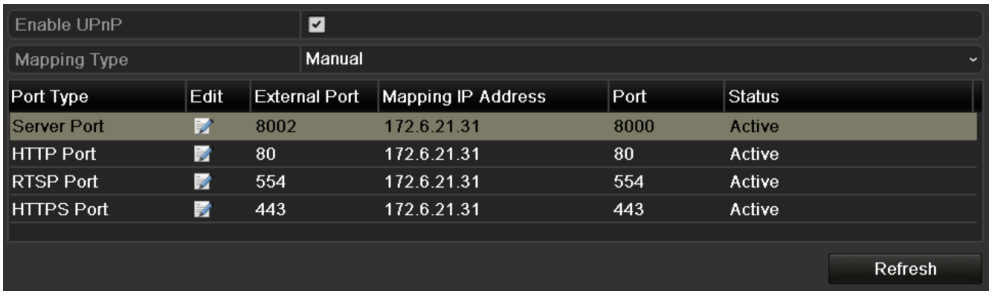


Figure 9. 28 UPnP™ Settings Finished-Manual

9.2.12 Configuring High-speed Download

Purpose:

You can enable the High-speed Download function to widen the outgoing bandwidth of the device. In this way you can speed up the download of record files through IE browser or CMS software.

Note: If you enable the high-speed download function, the local menu operation will be affected. It is recommended to disable this function after finishing the remote downloading of record files.

Steps:

1. Enter the Network Settings interface.

   Menu >Configuration> Network

2. Select the **More Settings** tab to enter the More Settings interface, as shown in Figure 9. 16.
3. Check the checkbox of **Enable High-speed Download**. And click the **OK** button in the pop-up message box to confirm the settings.

Figure 9. 29 High-speed Download Settings Menu

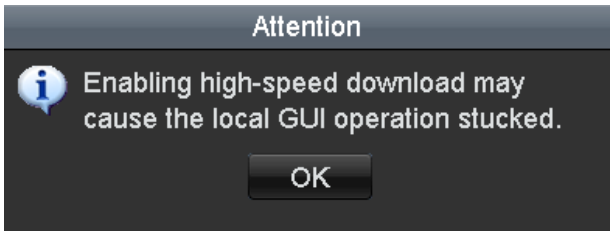


Figure 9. 30 Message Box of High-speed Download

4. Click **Apply** button to save and exit the interface.

9.3 Checking Network Traffic

Purpose:

You can check the network traffic to obtain real-time information of NVR such as linking status, MTU, sending/receiving rate, etc.

Steps:

1. Enter the Network Traffic interface.

   Menu >Maintenance>Net Detect

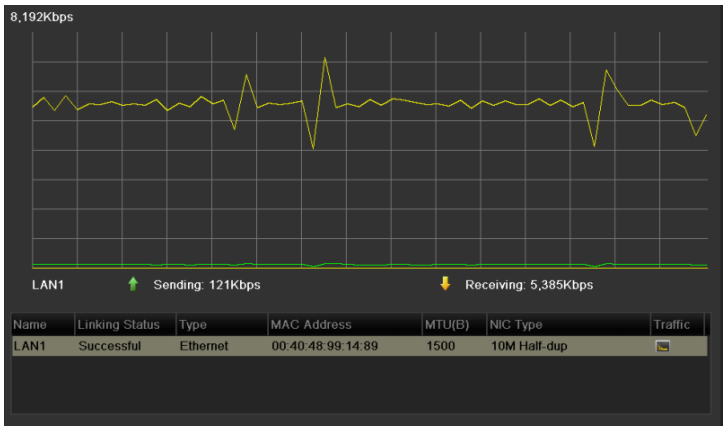


Figure 9. 31 Network Traffic Interface

2. You can view the sending rate and receiving rate information on the interface. The traffic data is refreshed every 1 second.

9.4 Configuring Network Detection

Purpose:

You can obtain network connecting status of NVR through the network detection function, including network delay, packet loss, etc.

9.4.1 Testing Network Delay and Packet Loss

Steps:

1. Enter the Network Traffic interface.
   Menu >Maintenance>Net Detect
2. Click the **Network Detection** tab to enter the Network Detection menu, as shown in Figure 9. 32.

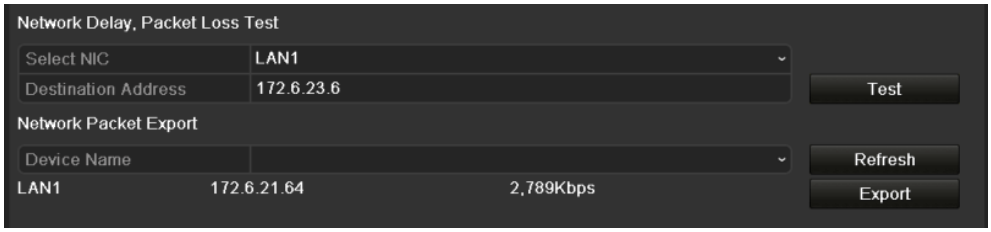


Figure 9. 32 Network Detection Interface

3. Enter the destination address in the text field of **Destination Address**.
4. Click Test to start testing network delay and packet loss. The testing result pops up on the window. If the testing is failed, the error message box will pop up as well. Refer to Figure 9. 33.

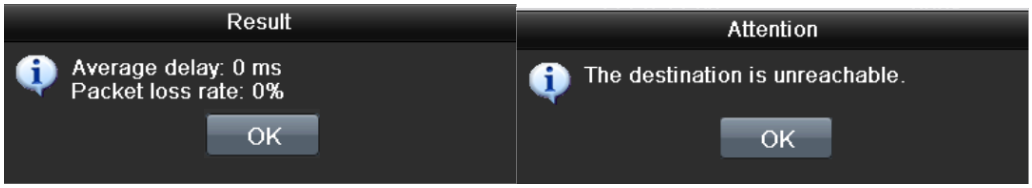


Figure 9. 33 Testing Result of Network Delay and Packet Loss

9.4.2 Exporting Network Packet

Purpose:

By connecting the NVR to network, the captured network data packet can be exported to USB-flash disk, SATA/eSATA, DVD-R/W and other local backup devices.

Steps:

1. Enter the Network Traffic interface.
   Menu >Maintenance>Net Detect
2. Click the **Network Detection** tab to enter the Network Detection interface.
3. Select the backup device from the dropdown list of Device Name, as shown in Figure 9. 34.

Note: Click Refresh if the connected local backup device cannot be displayed. When it fails to detect the backup device, please check whether it is compatible with the NVR. You can format the backup device if the format is incorrect.

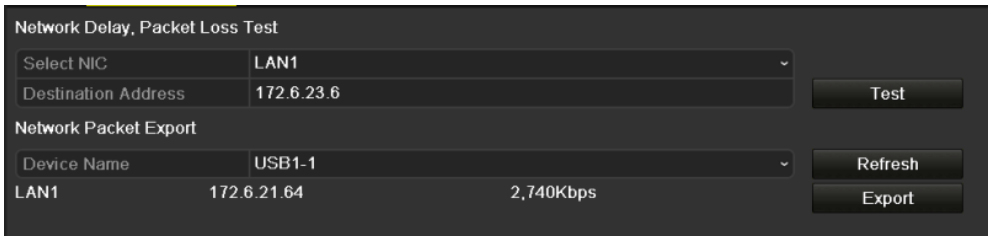


Figure 9. 34 Export Network Packet

4. Click Export to start exporting.
5. After the exporting is complete, click **OK** to finish the packet export, as shown in Figure 9. 35.

Figure 9. 35 Packet Export Attention

Note: Up to 1M data can be exported each time.

9.4.3 Checking the network status

Purpose:

You can also check the network status and quick set the network parameters in this interface.

Steps:

Click Status button on the bottom right corner of the page.

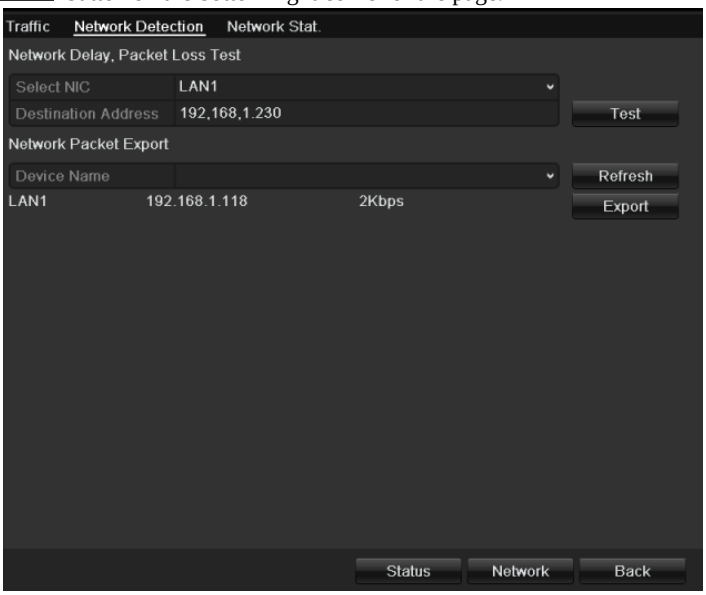


Figure 9. 36 Network status checking

If the network is normal the following message box pops out.

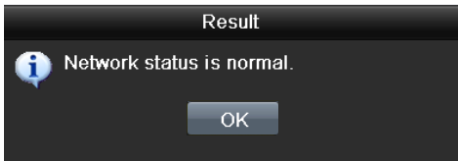


Figure 9. 37 Network status checking result

If the message box pops out with other information instead of this one, you can click Network to show the quick setting interface of the network parameters.

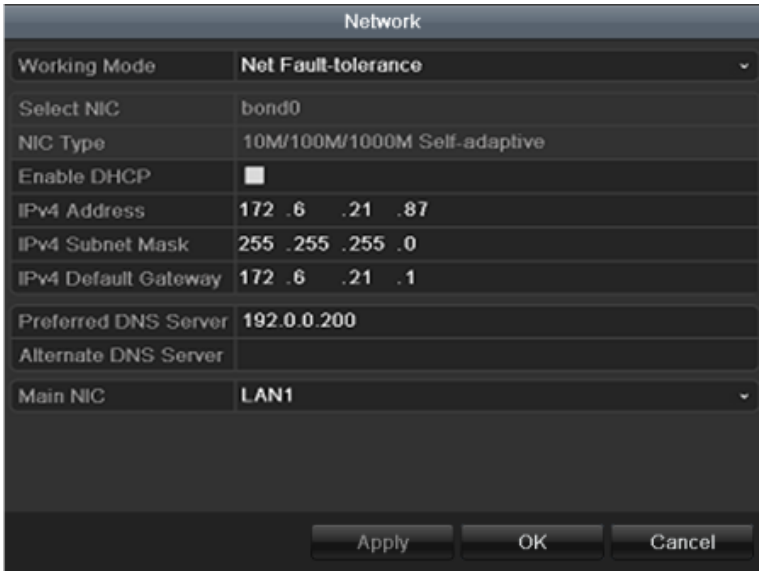


Figure 9. 38 Network parameters configuration

9.4.4 Checking Network Statistics

Purpose:

You can check the network status to obtain the real-time information of NVR.

Steps:

1. Enter the Network Detection interface.

   Menu>Maintenance>Net Detect

2. Choose the **Network Stat.** tab.

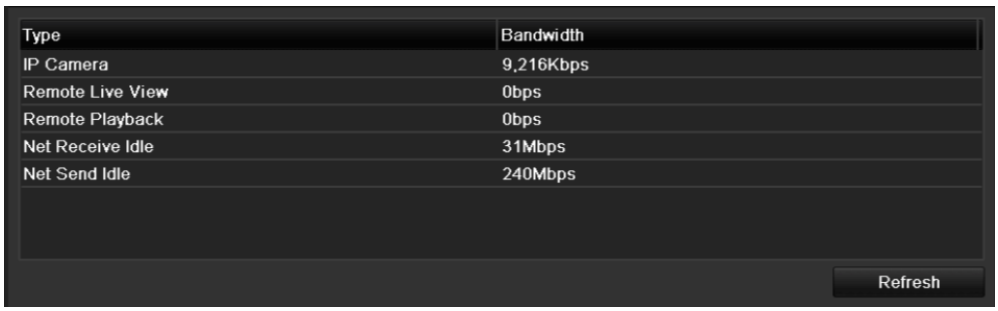


Figure 9. 39 Network Stat. Interface

3. Check the bandwidth of IP Camera, bandwidth of Remote Live View, bandwidth of Remote Playback, bandwidth of Net Receive Idle and bandwidth of Net Send Idle.
4. You can click Refresh to get the newest status.

Chapter 10 HDD Management

10.1 Initializing HDDs

Purpose:

A newly installed hard disk drive (HDD) must be initialized before it can be used with your NVR.

Note: A message box pops up when the NVR starts up if there exits any uninitialized HDD.

Attention
Not all hard disks are initialized. Initialization will erase all data on the disk. Do you want to initialize the disk(s)?
Yes
No

Figure 10. 1 Message Box of Uninitialized HDD

Click **Yes** button to initialize it immediately or you can perform the following steps to initialize the HDD.

Steps:

1. Enter the HDD Information interface.

   Menu > HDD> General

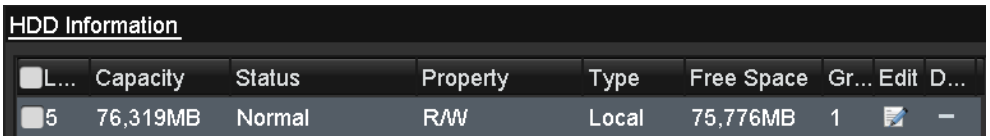


Figure 10. 2 HDD Information Interface

2. Select HDD to be initialized.
3. Click the **Init** button.

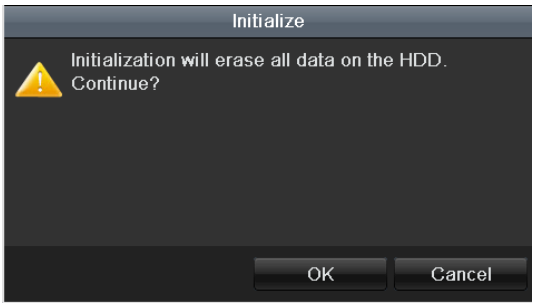


Figure 10. 3 Confirm Initialization

4. Select the **OK** button to start initialization.

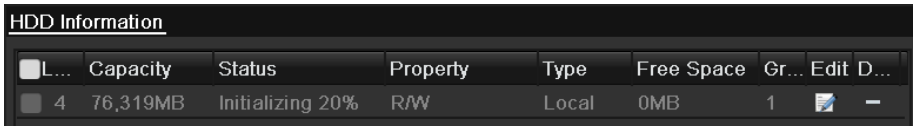


Figure 10. 4 Status changes to Formatting

5. After the HDD has been initialized, the status of the HDD will change from *Uninitialized* to *Normal*.

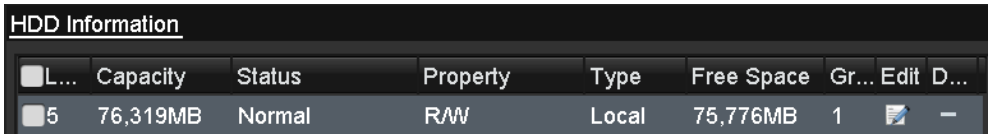


Figure 10. 5 HDD Status Changes to Normal

Note: Initializing the HDD will erase all data on it.

10.2 Managing Network HDD

Purpose:

You can add the allocated NAS or disk of IP SAN to NVR, and use it as network HDD.

Steps:

1. Enter the HDD Information interface.

   Menu > HDD>General

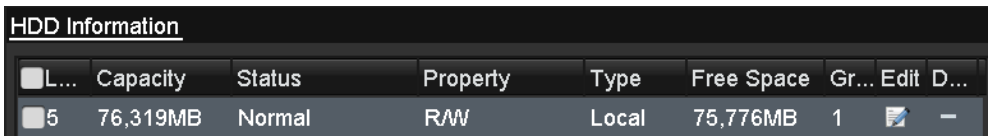


Figure 10. 6 HDD Information Interface

2. Click the **Add** button to enter the Add NetHDD interface, as shown in Figure 10. 7.

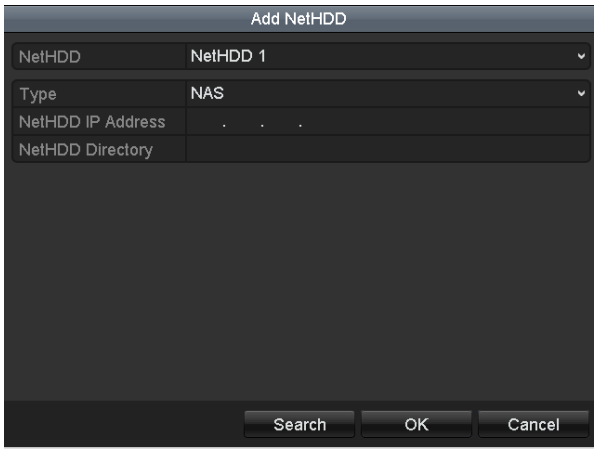


Figure 10. 7 HDD Information Interface

3. Add the allocated NetHDD.
4. Select the type to NAS or IP SAN.
5. Configure the NAS or IP SAN settings.

   - **Add NAS disk:**

   1) Enter the NetHDD IP address in the text field.
   2) Click the **Search** button to search the available NAS disks.
   3) Select the NAS disk from the list shown below.

      Or you can just manually enter the directory in the text field of NetHDD Directory.

   4) Click the **OK** button to add the configured NAS disk.

   Note: Up to 8 NAS disks can be added.

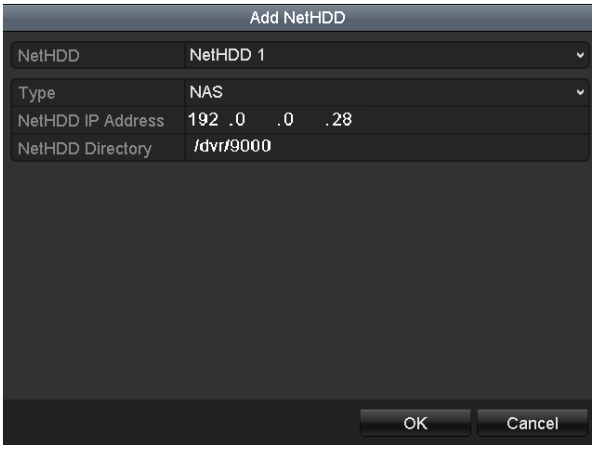


Figure 10. 8 Add NAS Disk

- **Add IP SAN:**

1) Enter the NetHDD IP address in the text field.
2) Click the **Search** button to search the available IP SAN disks.
3) Select the IP SAN disk from the list shown below.
4) Click the **OK** button to add the selected IP SAN disk.

Note: Up to 1 IP SAN disk can be added.

Figure 10. 9 Add IP SAN Disk

6. After having successfully added the NAS or IP SAN disk, return to the HDD Information menu. The added NetHDD will be displayed in the list.

Note: If the added NetHDD is uninitialized, please select it and click the **Init** button for initialization.

Figure 10. 10 Initialize Added NetHDD

10.3 Managing eSATA

Purpose:

When there is an external eSATA device connected to NVR, you can configure eSATA for the use of Record/Capture or Export, and you can manage the eSATA in the NVR.

Steps:

1. Enter the Advanced Record Settings interface.

   Menu >Record>Advanced

2. Select the eSATA type to Export or Record/Capture from the dropdown list of **eSATA**.

   Export: use the eSATA for backup. Refer to *Backup using eSATA HDDs* in *Chapter* **错误！未找到引用源。** for operating instructions.

   Record/Capture: use the eSATA for record/capture. Refer to the following steps for operating instructions.

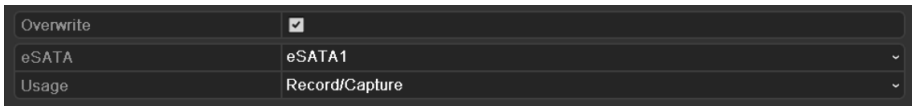


Figure 10. 11 Set eSATA Mode

3. When the eSATA type is selected to Record/Capture, enter the HDD Information interface.

   Menu > HDD>General

4. Edit the property of the selected eSATA, or initialize it is required.

   Note: Two storage modes can be configured for the eSATA when it is used for Record/Capture. Please refer to *Chapter Managing HDD Group* and *Chapter Configuring Quota Mode* for details.

Figure 10. 12 Initialize Added eSATA

10.4 Managing HDD Group

10.4.1 Setting HDD Groups

Purpose:

Multiple HDDs can be managed in groups. Video from specified channels can be recorded onto a particular HDD group through HDD settings.

Steps:

1. Enter the Storage Mode interface.

   Menu > HDD > Advanced

2. Set the **Mode** to Group, as shown in Figure 10. 13.

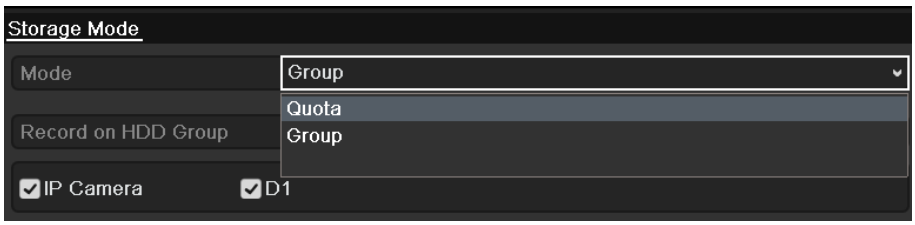


Figure 10. 13 Storage Mode Interface

3. Click the **Apply** button and the following Attention box will pop up.

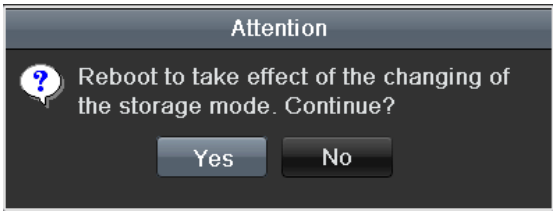


Figure 10. 14 Attention for Reboot

4. Click the **Yes** button to reboot the device to activate the changes.
5. After reboot of device, enter the HDD Information interface.

   Menu > HDD> General

6. Select HDD from the list and click icon to enter the Local HDD Settings interface, as shown in Figure 10. 15.

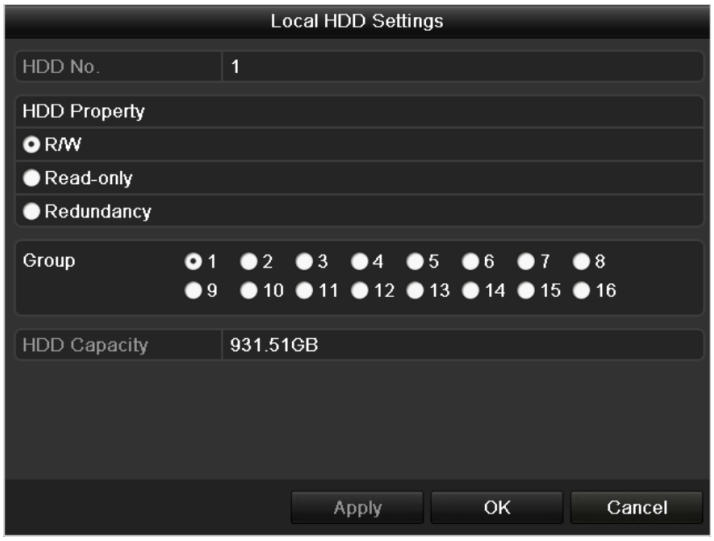


Figure 10. 15 Local HDD Settings Interface

7. Select the Group number for the current HDD.

Note: The default group No. for each HDD is 1.

8. Click the **OK** button to confirm the settings.

Figure 10. 16 ConfirmHDD Group Settings

9. In the pop-up Attention box, click the **Yes** button to finish the settings.

10.4.2 Setting HDD Property

Purpose:

The HDD property can be set to redundancy, read-only or read/write (R/W). Before setting the HDD property, please set the storage mode to Group (refer to step1-4 of Chapter Setting HDD Groups).

A HDD can be set to read-only to prevent important recorded files from being overwritten when the HDD becomes full in overwrite recording mode.

When the HDD property is set to redundancy, the video can be recorded both onto the redundancy HDD and the R/W HDD simultaneously so as to ensure high security and reliability of video data.

Steps:

1. Enter the HDD Information interface.

   Menu > HDD> General

2. Select HDD from the list and click the icon to enter the Local HDD Settings interface, as shown in Figure 10. 17.

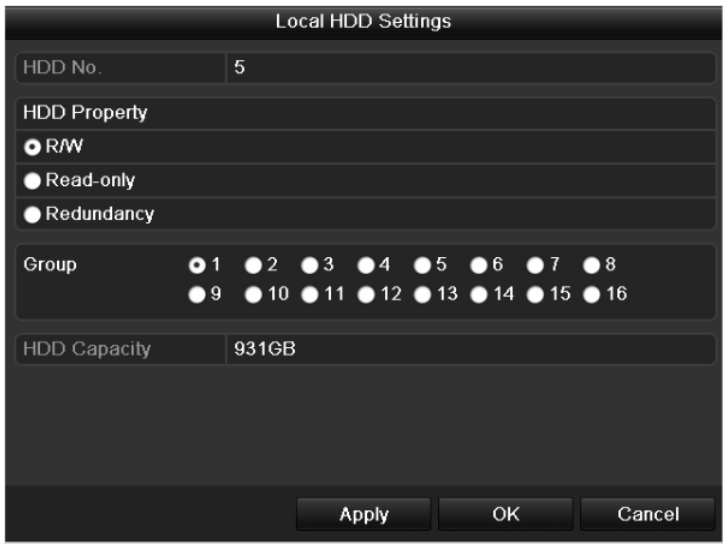


Figure 10. 17 Set HDD Property

3. Set the HDD property to R/W, Read-only or Redundancy.
4. Click the **OK** button to save the settings and exit the interface.
5. In the HDD Information menu, the HDD property will be displayed in the list.

Note: At least 2 hard disks must be installed on your NVR when you want to set a HDD to Redundancy, and there is one HDD with R/W property.

10.5 Configuring Quota Mode

Purpose:

Each camera can be configured with allocated quota for the storage of recorded files or captured pictures.

Steps:

1. Enter the Storage Mode interface.

   Menu > HDD > Advanced

2. Set the **Mode** to Quota, as shown in Figure 10. 18.

   Note: The NVR must be rebooted to enable the changes to take effect.

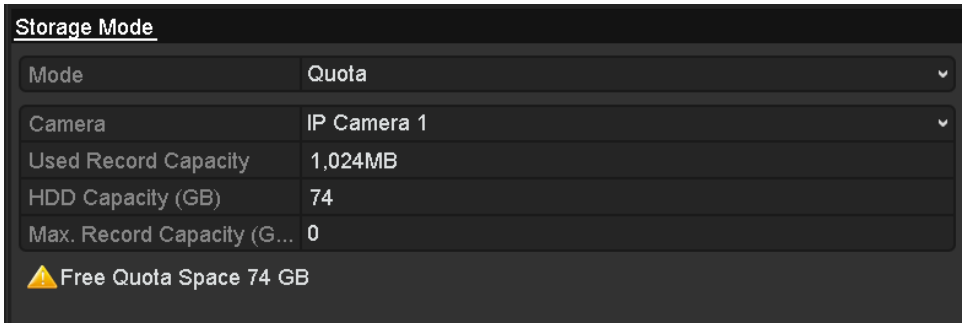


Figure 10. 18 Storage Mode Settings Interface

3. Select a camera for which you want to configure quota.
4. Enter the storage capacity in the text fields of **Max. Record Capacity (GB)** and **Max. Picture Capacity (GB)**, as shown in Figure 10. 19.

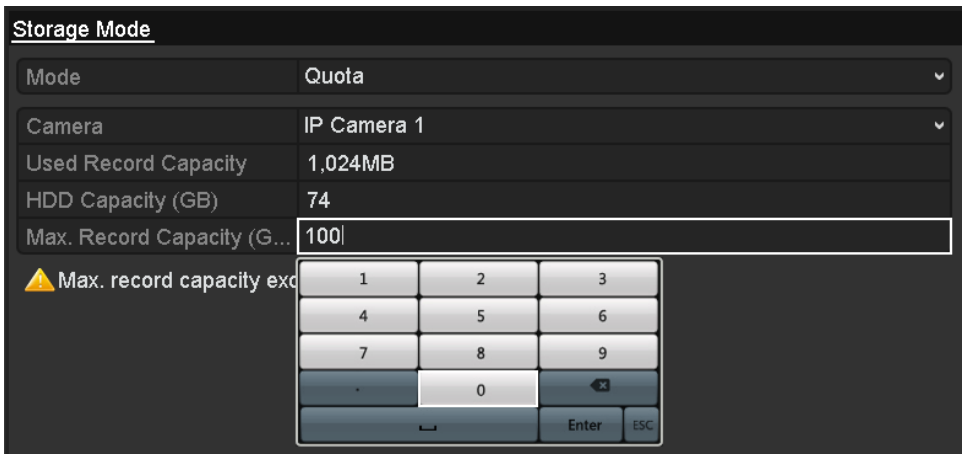


Figure 10. 19 Configure Record/Picture Quota

5. You can copy the quota settings of the current camera to other cameras if required. Click the **Copy** button to enter the Copy Camera menu, as shown in Figure 10. 20.

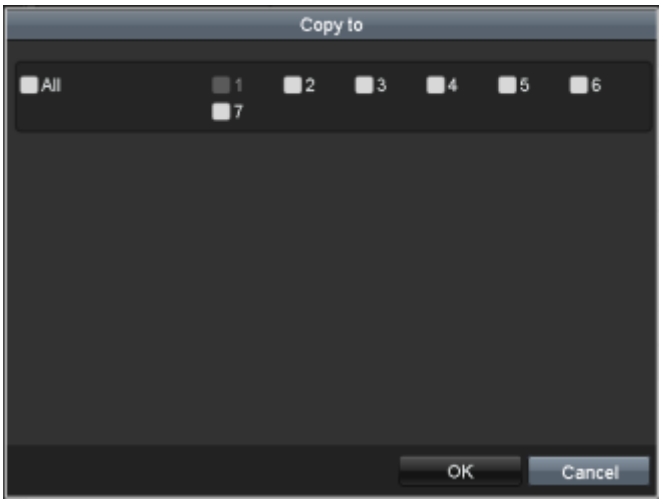


Figure 10. 20 Copy Settings to Other Camera(s)

6. Select the camera (s) to be configured with the same quota settings. You can also click the checkbox of IP Camera to select all cameras.
7. Click the **OK** button to finish the Copy settings and back to the Storage Mode interface.
8. Click the **Apply** button to apply the settings.

Note: If the quota capacity is set to *0*, then all cameras will use the total capacity of HDD for record and picture capture.

10.6 Checking HDD Status

Purpose:

You may check the status of the installed HDDs on NVR so as to take immediate check and maintenance in case of HDD failure.

Checking HDD Status in HDD Information Interface

Steps:

1. Enter the HDD Information interface.

   Menu > HDD>General

2. Check the status of each HDD which is displayed on the list, as shown in Figure 10. 21.

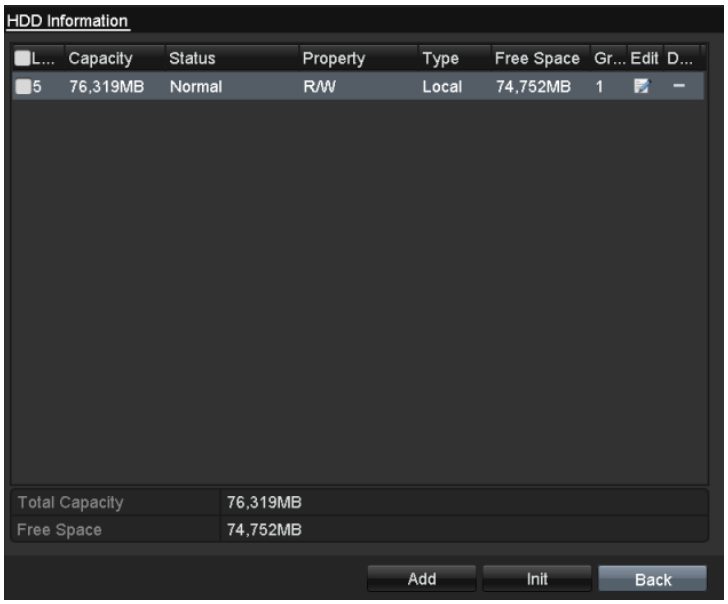


Figure 10. 21 View HDD Status (1)

Note: If the status of HDD is *Normal* or *Sleeping*, it works normally. If the status is *Uninitialized* or *Abnormal*, please initialize the HDD before use. And if the HDD initialization is failed, please replace it with a new one.

Checking HDD Status in HDD Information Interface

Steps:

1. Enter the System Information interface.

   Menu >Maintenance > System Info

2. Click the **HDD** tab to view the status of each HDD displayed on the list, as shown in Figure 10. 22.

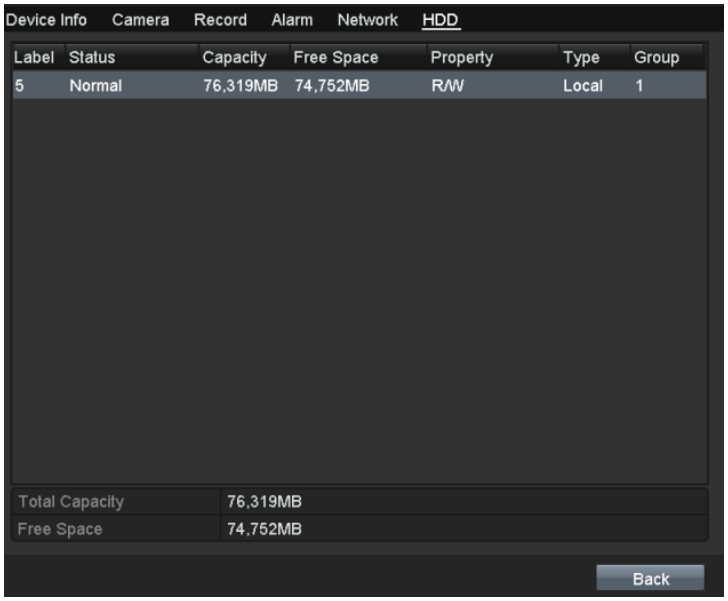


Figure 10. 22 View HDD Status (2)

10.7 HDD Detection

Purpose:

The device provides the HDD detection function such as the adopting of the S.M.A.R.T. and the Bad Sector Detection technique. The S.M.A.R.T. *(*Self-Monitoring, Analysis and Reporting Technology*)* is a monitoring system for HDD to detect and report on various indicators of reliability in the hopes of anticipating failures.

S.M.A.R.T. Settings

Steps:

1. Enter the S.M.A.R.T Settings interface.

   Menu > Maintenance >HDD Detect

2. Select the HDD to view its S.M.A.R.T information list, as shown in Figure 10. 23.

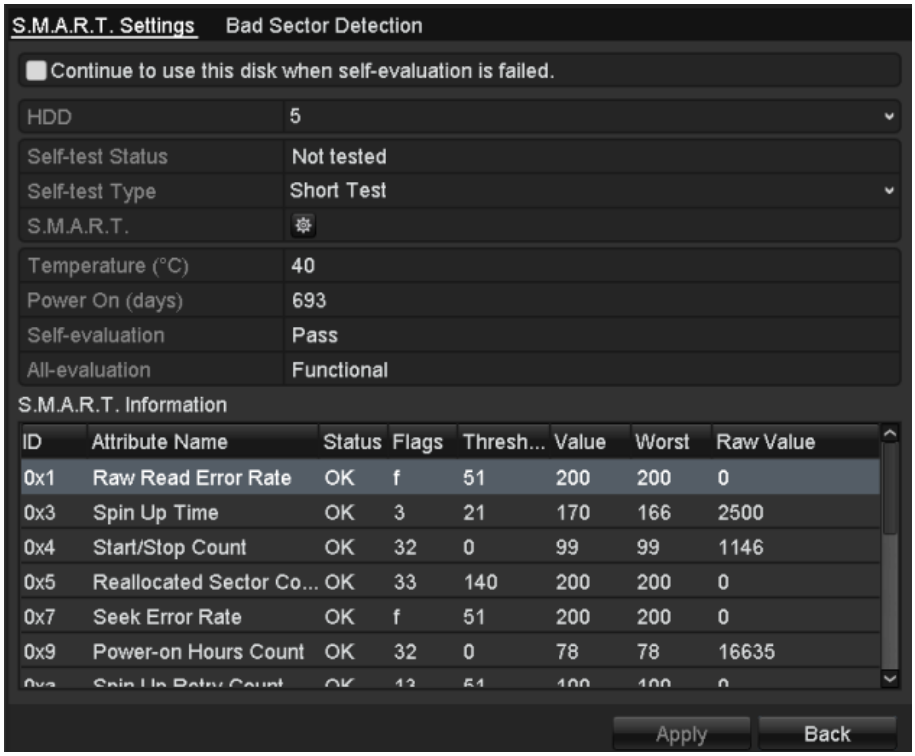


Figure 10. 23 S.M.A.R.T Settings Interface

The related information of the S.M.A.R.T. is shown on the interface.

You can choose the self-test types as Short Test, Expanded Test or the Conveyance Test.

Click the start button to start the S.M.A.R.T. HDD self-evaluation.

Note: If you want to use the HDD even when the S.M.A.R.T. checking is failed, you can check the checkbox of the **Continue to use the disk when self-evaluation is failed** item.

Bad Sector Detection

Steps:

1. Click the Bad Sector Detection tab.
2. Select the HDD No. in the dropdown list you want to configure, and choose All Detection or Key Area Detection as the detection type.
3. Click the **Detect** button to start the detection.

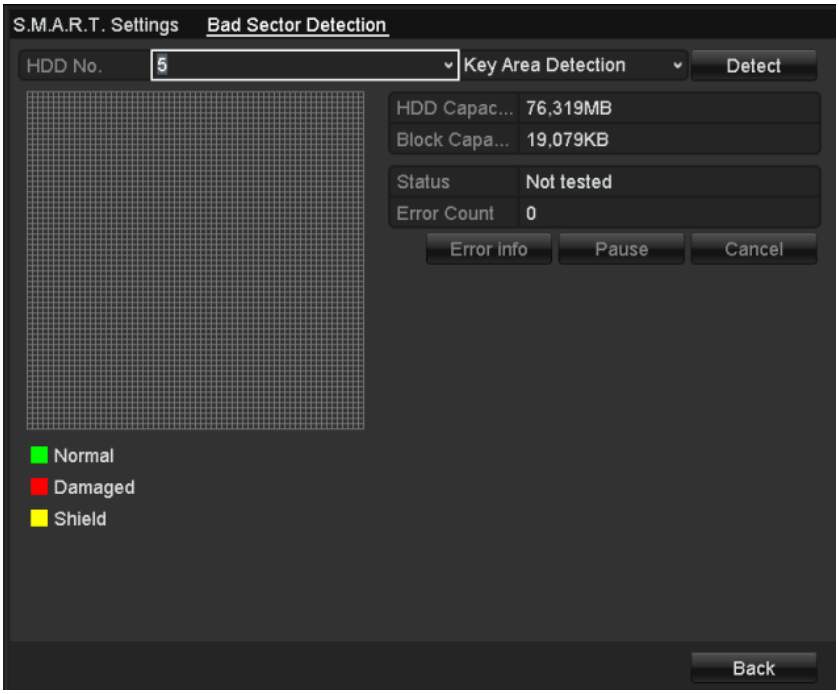


Figure 10. 24 Bad Sector Detection

Note: represents normal sector; represents bad sector detected by Bad Sector Detection; represents bad sector detected by recording.

And you can click **Error info** button to see the detailed damage information.

And you can also pause/resume or cancel the detection.

10.8 Configuring HDD Error Alarms

Purpose:

You can configure the HDD error alarms when the HDD status is *Uninitialized* or *Abnormal*.

Steps:

1. Enter the Exception interface.

   Menu > Configuration > Exceptions

2. Select the Exception Type to **HDD Error** from the dropdown list.
3. Click the checkbox(s) below to select the HDD error alarm type (s), as shown in Figure 10. 25.

Note: The alarm type can be selected to: Audible Warning, Notify Surveillance Center, Send Email and Trigger Alarm Output. Please refer to *Chapter Setting Alarm Response Actions*.

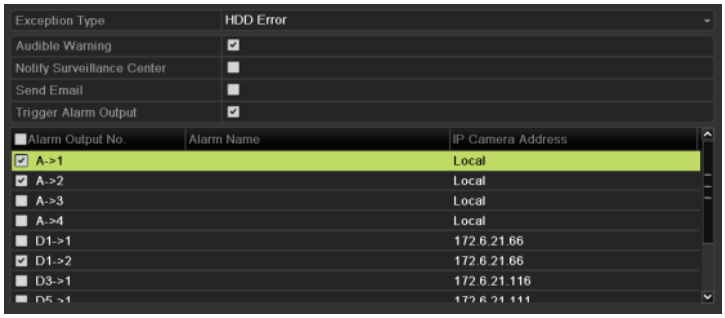


Figure 10. 25 Configure HDD Error Alarm

4. When the Trigger Alarm Output is selected, you can also select the alarm output to be triggered from the list below.
5. Click the **Apply** button to save the settings

Chapter 11 Camera Settings

11.1 Configuring OSD Settings

Purpose:

You can configure the OSD (On-screen Display) settings for the camera, including date /time, camera name, etc.

Steps:

1. Enter the OSD Configuration interface.
   Menu > Camera > OSD
2. Select the camera to configure OSD settings.
3. Edit the Camera Name in the text field.
4. Configure the Display Name, Display Date and Display Week by clicking the checkbox.
5. Select the Date Format, Time Format and Display Mode.

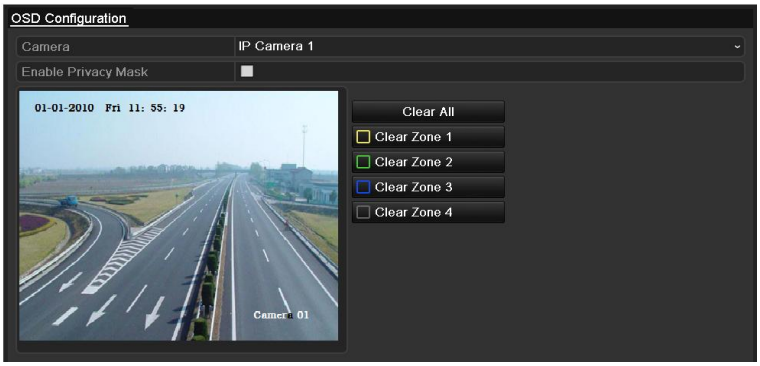


Figure 11. 1 OSD Configuration Interface

6. You can use the mouse to click and drag the text frame on the preview window to adjust the OSD position.
7. Click the **Apply** button to apply the settings.

11.2 Configuring Privacy Mask

Purpose:

You are allowed to configure the four-sided privacy mask zones that cannot be viewed by the operator. The privacy mask can prevent certain surveillance areas to be viewed or recorded.

Steps:

1. Enter the Privacy Mask Settings interface.

   Menu > Camera >Privacy Mask

2. Select the camera to set privacy mask.
3. Click the checkbox of **Enable Privacy Mask** to enable this feature.

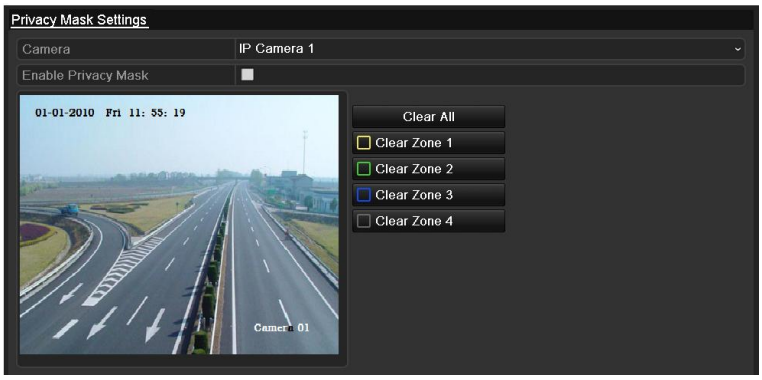


Figure 11. 2 Privacy Mask Settings Interface

4. Use the mouse to draw a zone on the window. The zones will be marked with different frame colors.

Note: Up to 4 privacy masks zones can be configured and the size of each area can be adjusted.

5. The configured privacy mask zones on the window can be cleared by clicking the corresponding Clear Zone1-4 icons on the right side of the window, or click **Clear All** to clear all zones.

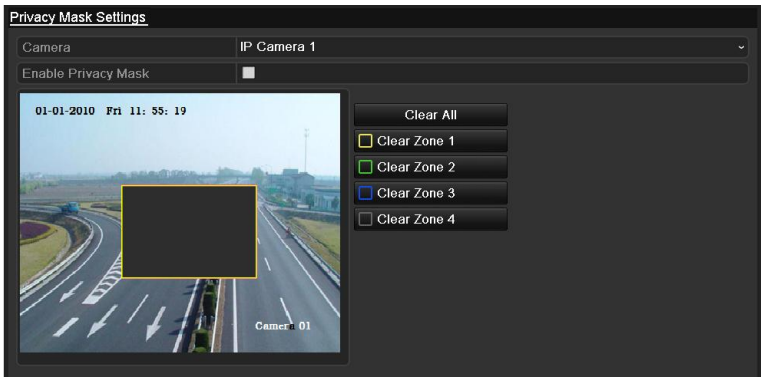


Figure 11. 3 Set Privacy Mask Area

6. Click the **Apply** button to save the settings.

11.3 Configuring Video Parameters

Steps:

1. Enter the Image Settings interface.

   Menu > Camera >Image

Figure 11. 4 Image Settings Interface

2. Select the camera to set image parameters.
3. You can click on the arrow to change the value of each parameter.
4. Click the **Apply** button to save the settings.

Chapter 12 NVR Management and Maintenance

12.1 Viewing System Information

12.1.1 Viewing Device Information

Steps:

1. Enter the System Information interface.
   Menu >Maintenance>System Info
2. Click the **Device Info** tab to enter the Device Information menu to view the device name, model, serial No. , firmware version and encode version, as shown in Figure 12. 1.

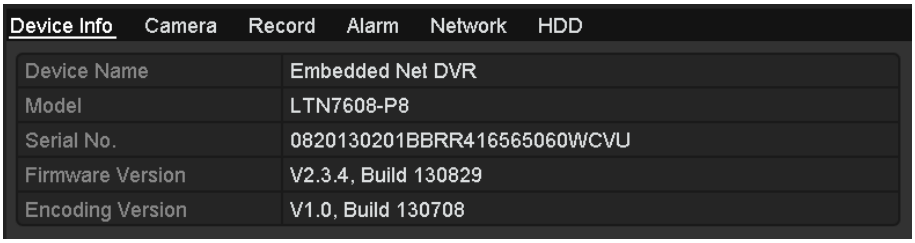


Figure 12. 1 Device Information Interface

12.1.2 Viewing Camera Information

Steps:

1. Enter the System Information interface.
   Menu >Maintenance>System Info
2. Click the **Camera** tab to enter the Camera Information menu to view the status of each camera, as shown in Figure 12. 2.

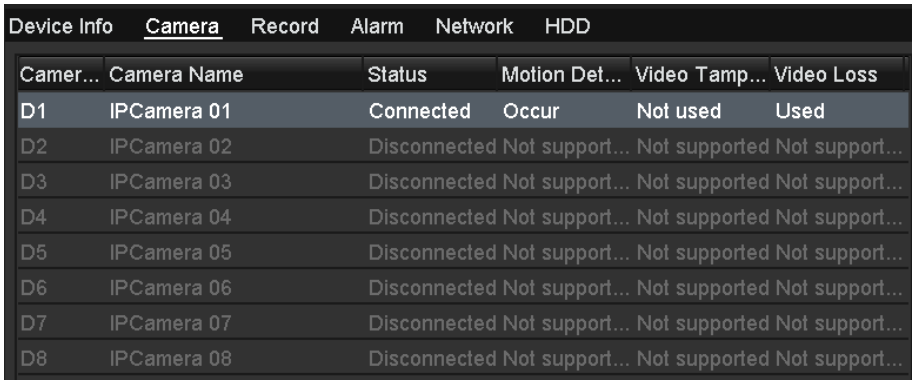


Figure 12. 2 Camera Information Interface

12.1.3 Viewing Record Information

Steps:

1. Enter the System Information interface.

Menu >Maintenance>System Info

2. Click the **Record** tab to enter the Record Information menu to view the recording status encoding parameters of each camera, as shown in Figure 12. 3.

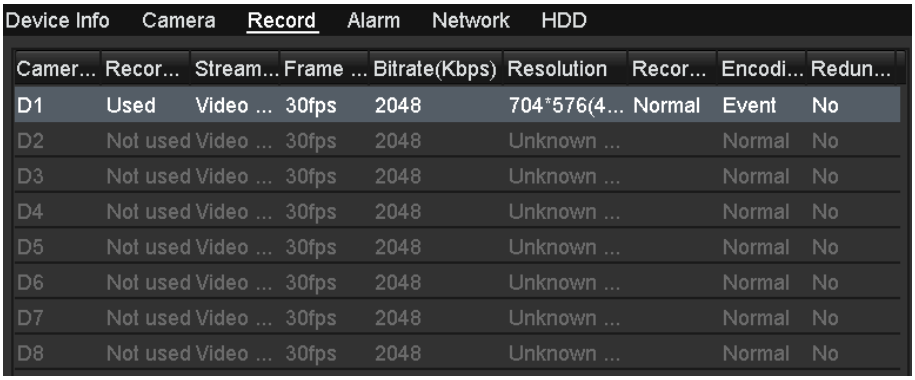

Device Info
Camera
Record
Alarm
Network
HDD
Camer... Recor... Stream... Frame ... Bitrate(Kbps) Resolution Recor... Encodi... Redun...
D1 Used Video ... 30fps 2048 704*576(4... Normal Event No
D2 Not used Video ... 30fps 2048 Unknown ... Normal No
D3 Not used Video ... 30fps 2048 Unknown ... Normal No
D4 Not used Video ... 30fps 2048 Unknown ... Normal No
D5 Not used Video ... 30fps 2048 Unknown ... Normal No
D6 Not used Video ... 30fps 2048 Unknown ... Normal No
D7 Not used Video ... 30fps 2048 Unknown ... Normal No
D8 Not used Video ... 30fps 2048 Unknown ... Normal No

Figure 12. 3 Record Information Interface

12.1.4 Viewing Alarm Information

Steps:

1. Enter the System Information interface.

   Menu >Maintenance>System Info

2. Click the **Alarm** tab to enter the Alarm Information menu to view the alarm information, as shown in Figure 12. 4.

Figure 12. 4 Alarm Information Interface

12.1.5 Viewing Network Information

Steps:

1. Enter the System Information interface.

   Menu >Maintenance>System Info

2. Click the **Network** tab to enter the Network Information menu to view the network information, as shown in Figure 12. 5.

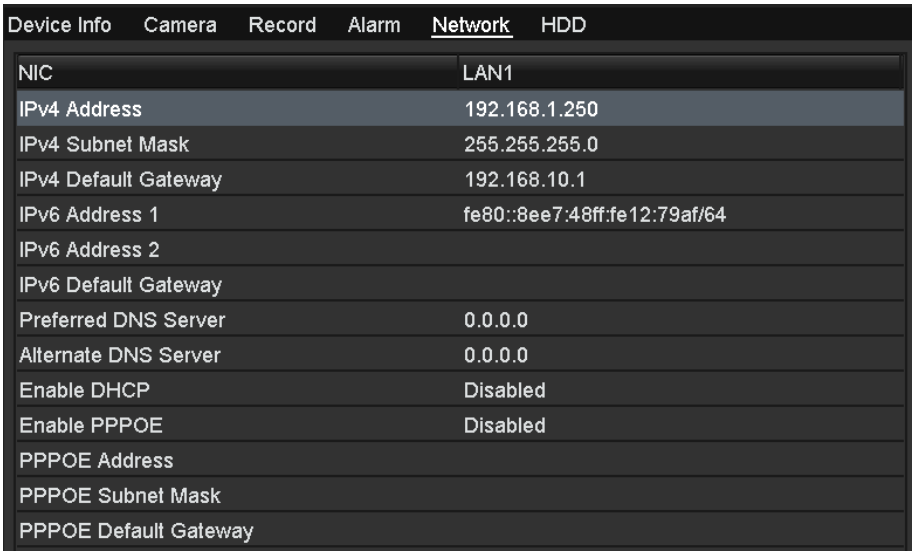


Figure 12. 5 Network Information Interface

12.1.6 Viewing HDD Information

Steps:

1. Enter the System Information interface.

   Menu >Maintenance>System Info

2. Click the **HDD** tab to enter the HDD Information menu to view the HDD status, free space, property, etc., as shown in Figure 12. 6.

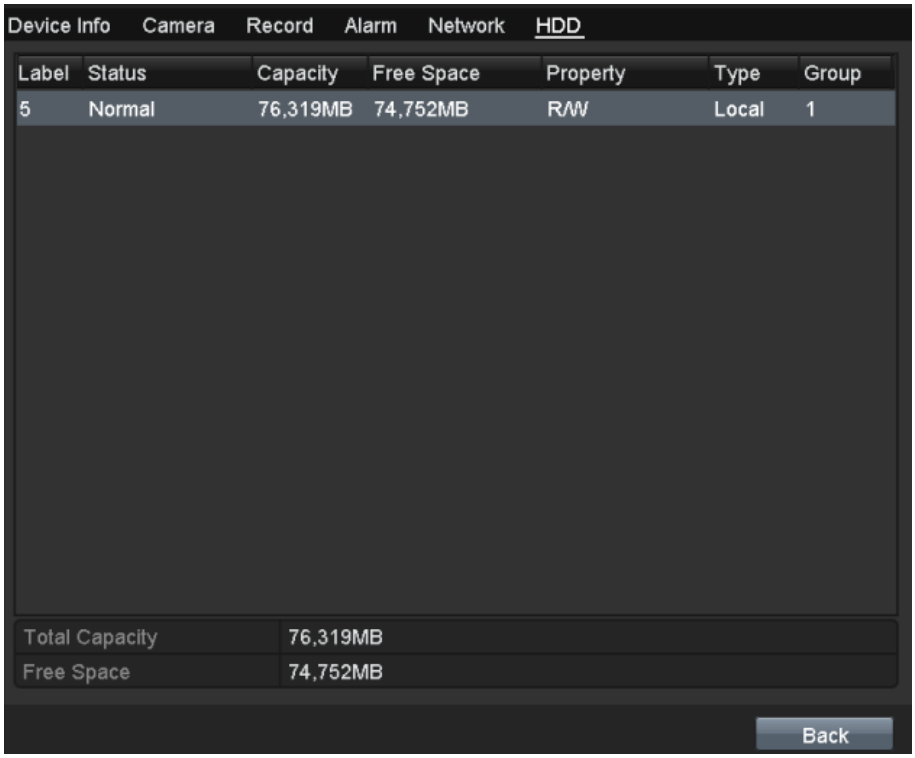


Figure 12. 6 HDD Information Interface

12.2 Searching & Export Log Files

Purpose:

The operation, alarm, exception and information of the NVR can be stored in log files, which can be viewed and exported at any time.

Steps:

1. Enter the Log Search interface.

   Menu >Maintenance>Log Information

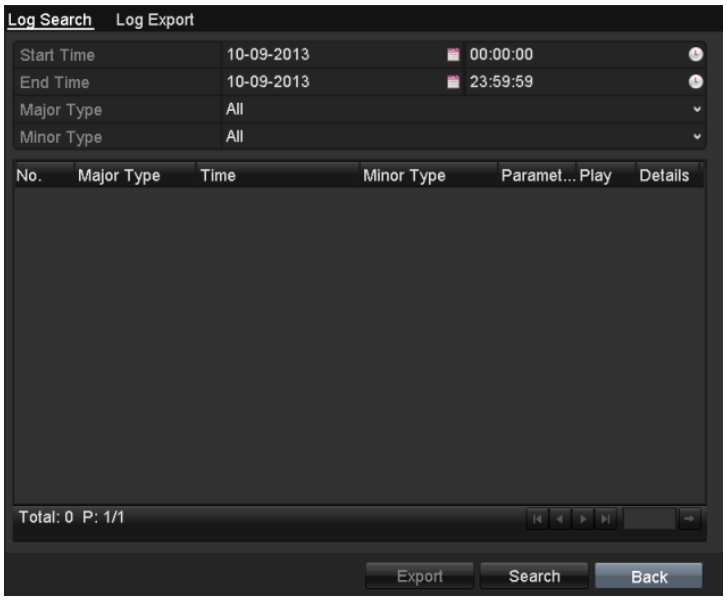


Figure 12. 7 Log Search Interface

2. Set the log search conditions to refine your search, including the Start Time, End Time, Major Type and Minor Type.
3. Click the **Search** button to start search log files.
4. The matched log files will be displayed on the list shown below.

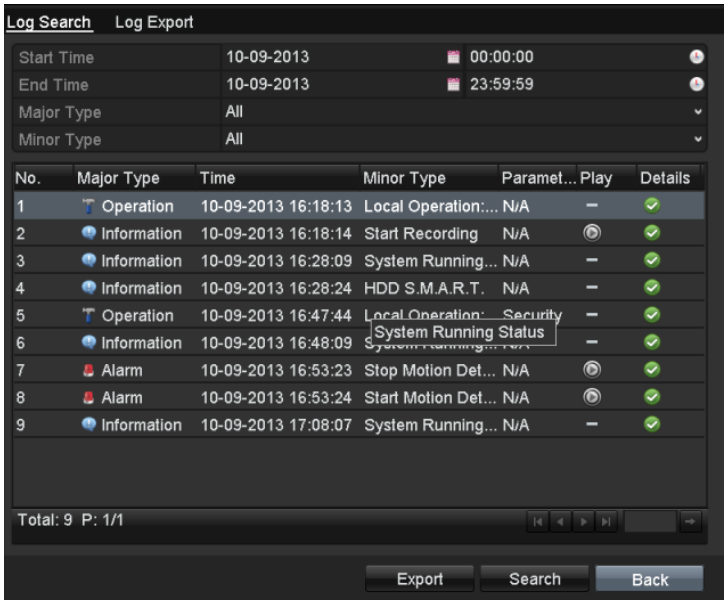

Log Search
Log Export
Start Time 10-09-2013 00:00:00
End Time 10-09-2013 23:59:59
Major Type All
Minor Type All
No. Major Type Time Minor Type Paramet... Play Details
1 Operation 10-09-2013 16:18:13 Local Operation:... N/A
2 Information 10-09-2013 16:18:14 Start Recording N/A
3 Information 10-09-2013 16:28:09 System Running... N/A
4 Information 10-09-2013 16:28:24 HDD S.M.A.R.T. N/A
5 Operation 10-09-2013 16:47:44 Local Operation: Security
6 Information 10-09-2013 16:48:09
7 Alarm 10-09-2013 16:53:23 Stop Motion Det... N/A
8 Alarm 10-09-2013 16:53:24 Start Motion Det... N/A
9 Information 10-09-2013 17:08:07 System Running... N/A
System Running Status
Total: 9 P: 1/1
Export
Search
Back

Figure 12. 8 Log Search Results

Note: Up to 2000 log files can be displayed each time.

5. You can click the button of each log or double click it to view its detailed information, as shown in Figure 12. 9. And you can also click the button to view the related video files if available.

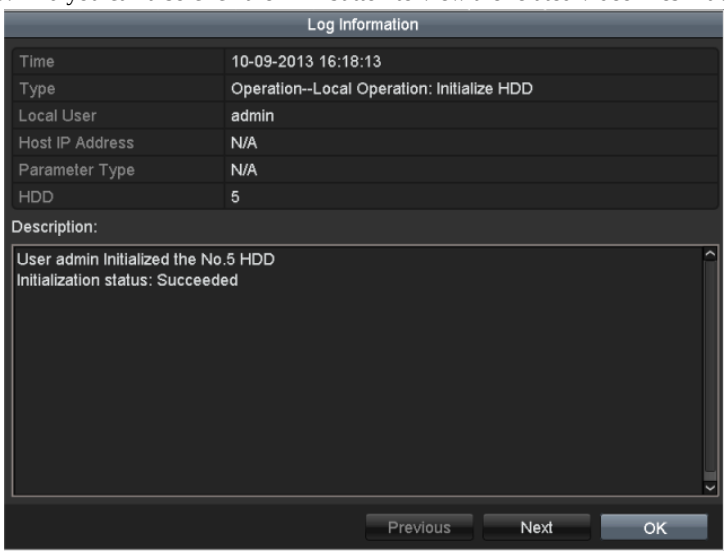


Figure 12. 9 Log Details

6. If you want to export the log files, click the **Export** button to enter the Export menu, as shown in Figure 12. 10.

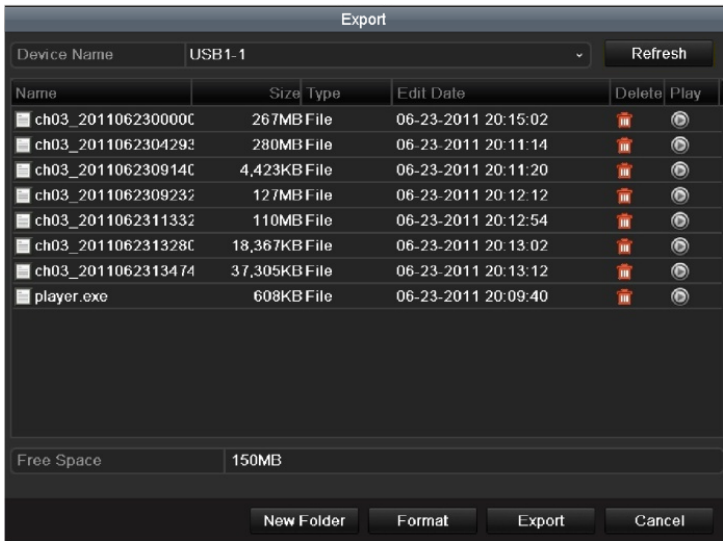


Figure 12. 10 Export Log Files

7. Select the backup device from the dropdown list of **Device Name**.
8. Click the **Export** to export the log files to the selected backup device.

   You can click the **New Folder** button to create new folder in the backup device, or click the **Format** button to format the backup device before log export.

   Notes:

   1) Please connect the backup device to NVR before operating log export.

   2) The log files exported to the backup device are named by exporting time, e.g., *20110514124841logBack.txt*.

   To export all the log files:

   Steps:

   1. Enter the Log Information interface.

      Menu> Maintenance> Log Information> Log Export

   2. Click the **Log Export** tab.

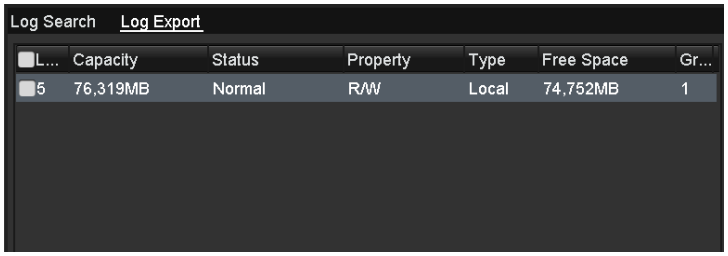


Figure 12. 11 Log Export Interface

   3. You can check the checkbox of the HDD.
   4. Click the **Export** button to export all the log files stored in the HDD.

12.3 Importing/Exporting Configuration Files

Purpose:

The configuration files of the NVR can be exported to local device for backup; and the configuration files of one NVR can be imported to multiple NVR devices if they are to be configured with the same parameters.

Steps:

1. Enter the Import/Export Configuration File interface.

   Menu > Maintenance >Import/Export

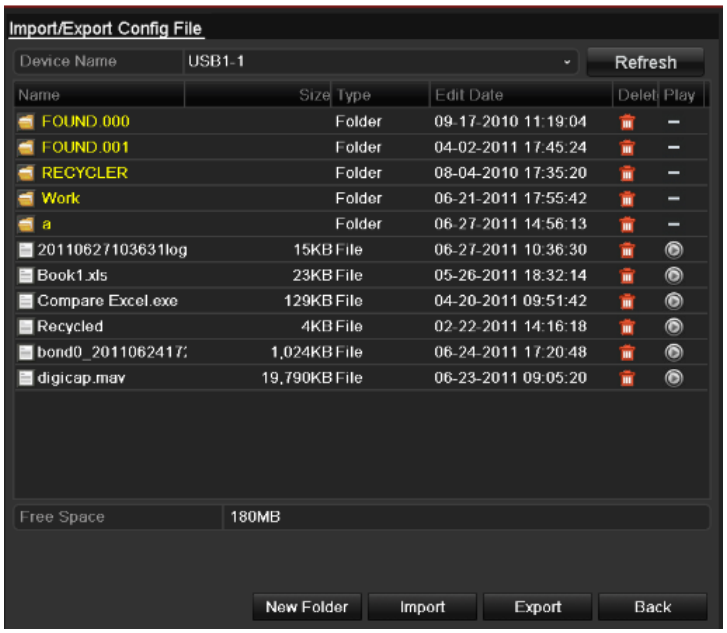


Figure 12. 12 Import/Export Config File

2. Click the **Export** button to export configuration files to the selected local backup device.
3. To import a configuration file, select the file from the selected backup device and click the **Import** button.

   After the import process is completed, you must reboot the NVR.

Note: After having finished the import of configuration files, the device will reboot automatically.

12.4 Upgrading System

Purpose:

The firmware on your NVR can be upgraded by local backup device or remote FTP server.

12.4.1 Upgrading by Local Backup Device

Steps:

1. Connect your NVR with a local backup device where the update firmware file is located.
2. Enter the Upgrade interface.

   Menu >Maintenance>Upgrade
3. Click the **Local Upgrade** tab to enter the local upgrade menu, as shown in Figure 12. 13.

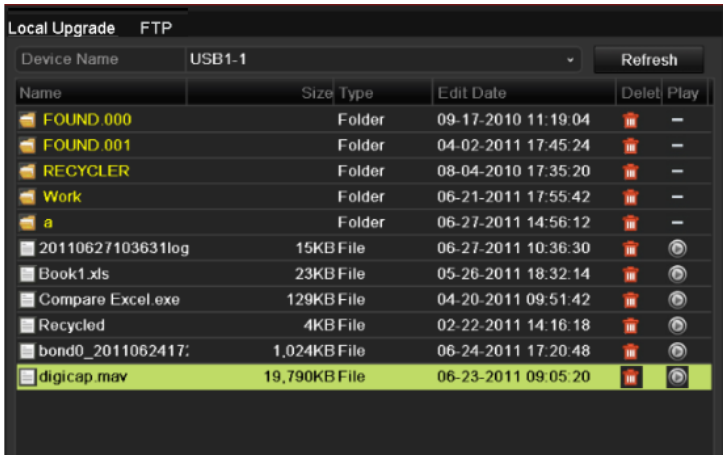


Figure 12. 13 Local Upgrade Interface

4. Select the update file from the backup device.
5. Click the **Upgrade** button to start upgrading.
6. After the upgrading is complete, reboot the NVR to activate the new firmware.

12.4.2 Upgrading by FTP

Before you start:

Configure PC (running FTP server) and NVR to the same Local Area Network. Run the 3rd-party TFTP software on the PC and copy the firmware into the root directory of TFTP.

Steps:

1. Enter the Upgrade interface.

   Menu >Maintenance>Upgrade
2. Click the **FTP** tab to enter the local upgrade interface, as shown in Figure 12. 14.

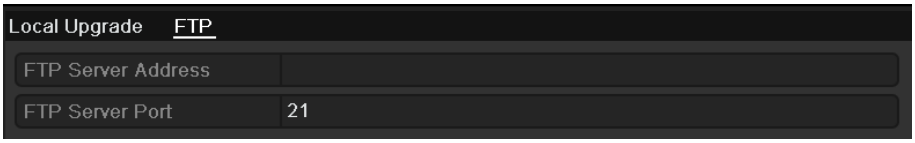


Figure 12. 14 FTP Upgrade Interface

3. Enter the FTP Server Address in the text field.
4. Click the **Upgrade** button to start upgrading.
5. After the upgrading is complete, reboot the NVR to activate the new firmware.

12.5 Restoring Default Settings

Steps:

1. Enter the Default interface.

   Menu > Maintenance > Default

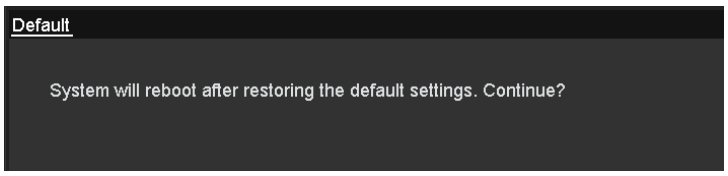


Figure 12. 15 Restore Factory Default

2. Click the **OK** button to restore the default settings.

Note: Except the network parameters (including IP address, subnet mask, gateway, MTU, NIC working mode, default route and server port), all other parameters of the device will be restored to factory default settings.

Chapter 13 Others

13.1 Configuring RS-232 Serial Port

Purpose:

The RS-232 port can be used in two ways:

• Parameters Configuration: Connect a PC to the NVR through the PC serial port. Device parameters can be configured by using software such as HyperTerminal. The serial port parameters must be the same as the NVR's when connecting with the PC serial port.

• Transparent Channel: Connect a serial device directly to the NVR. The serial device will be controlled remotely by the PC through the network and the protocol of the serial device.

Steps:

1. Enter the RS-232 Settings interface.

   Menu >Configuration> RS-232

Figure 13. 1 RS-232 Settings Interface

2. Configure RS-232 parameters, including baud rate, data bit, stop bit, parity, flow control and usage.
3. Click the **Apply** button to save the settings.

13.2 Configuring General Settings

Purpose:

You can configure the BNC output standard, VGA output resolution, mouse pointer speed through the Menu > Configuration > General interface.

Steps:

1. Enter the General Settings interface.
   Menu >Configuration> General
2. Select the **General** tab.

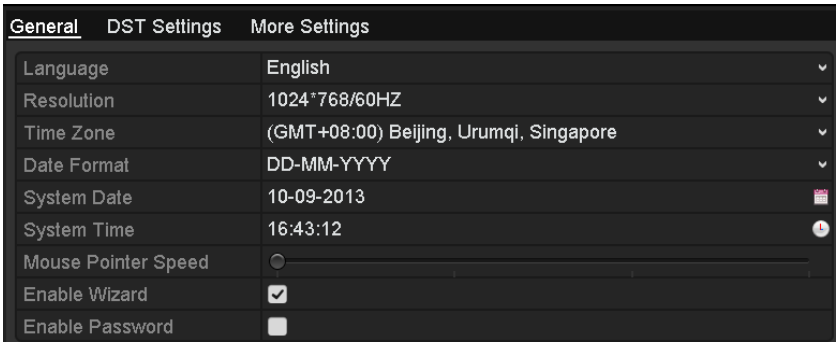


Figure 13. 2 General Settings Interface

3. Configure the following settings:
   - **Language:** The default language used is *English*.
   - **CVBS Output Standard:** Select the CVBS output standard to NTSC or PAL, which must be the same with the video input standard.
   - **VGA Resolution:** Select the VGA output resolution, which must be the same with the resolution of the monitor screen.
   - **HDMI Resolution:** Select the HDMI resolution, which must be the same with the resolution of the monitor screen.
   - **Time Zone:** Select the time zone.
   - **Date Format:** Select the date format.
   - **System Date:** Select the system date.
   - **System Time:** Select the system time.
   - **Mouse Pointer Speed:** Set the speed of mouse pointer; 4 levels are configurable.
   - **Enable Wizard:** Enable/disable the Wizard when the device starts up.
   - **Enable Password:** Enable/disable the use of the login password.
4. Click the **Apply** button to save the settings.

13.3 Configuring DST Settings

Steps:

1. Enter the General Settings interface.
   Menu >Configuration>General
2. Choose **DST Settings** tab.

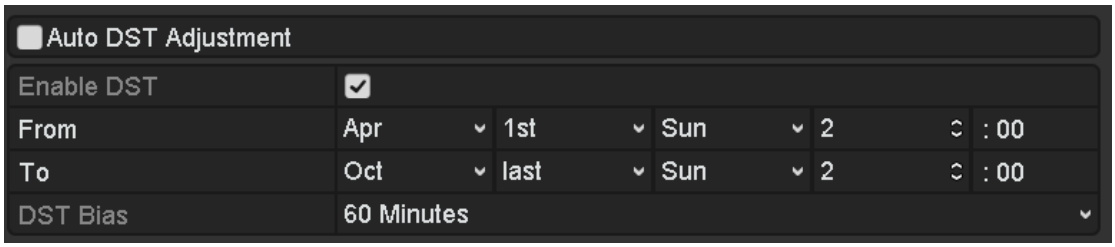


Figure 13. 3 DST Settings Interface

You can check the checkbox before the Auto DST Adjustment item.

Or you can manually check the Enable DST checkbox, and then you choose the date of the DST period.

13.4 Configuring More Settings for Device Parameters

Steps:

1. Enter the General Settings interface.
   Menu >Configuration>General
2. Click the **More Settings** tab to enter the More Settings interface, as shown in Figure 13. 4.

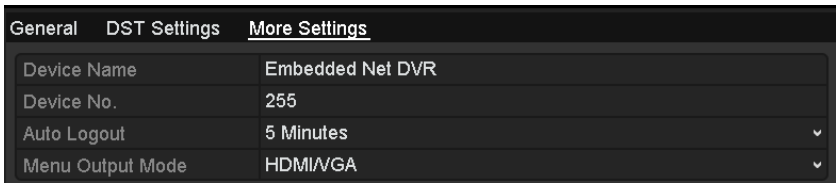


Figure 13. 4 More Settings Interface

3. Configure the following settings:
   - **Device Name:** Edit the name of NVR.
   - **Device No.:** Edit the serial number of NVR. The Device No. can be set in the range of 1~255, and the default No. is 255. The number is used for the remote and keyboard control.
   - **CVBS Output Brightness:** Adjust the video output brightness.
   - **Operation Timeout:** Set timeout time for menu inactivity. E.g.,when the timeout time is set to *5 Minutes*, then the system will exit from the current operation menu to live view screen after 5 minutes of menu inactivity.
   - **Menu Output Mode:** You can choose the menu display on different video output. There are auto, HDMI, VGA and Main CVBS selectable.
4. Click the **Apply** button to save the settings.

14.5 Configuring POS

Steps:

1. Enter the **POS Settings** interface.
   Menu > Configuration > POS
2. Select the **POS Setting** tab to enter the POS Settings interface.

Figure 13. 5 POS Settings Interface

3. Check the **POS** checkbox to enable this feature. Enter **POS Name** and **Select connection type**.
   "TCP Receive" or"RS232" optional
4. Connection can be used in two ways
   - **TCP Receive Setting**

   Click the Set icon of **TCP Receive port** to set receive port of **POS**. Through the port settings, Data- directed transmission can be successfully between POS server and DVR/NVR

Figure 13. 6 TCP Receive port Settings Interface

- **RS232 Setting**

Purpose: The RS-232 port can be used in two ways:

• Parameters Configuration: Connect a PC to the device through the PC serial port. Device parameters can be configured by using software such as HyperTerminal. The serial port parameters must be the same as the device‟s when connecting with the PC serial port.

• Transparent Channel: Connect a serial device directly to the device. The serial device will be controlled remotely by the PC through the network.

Steps:

Click the Set icon of **RS232-setting port** to set receive port of **POS**.

Figure 13. 7 RS232-Receive port Settings Interface

Configure RS-232 parameters, including baud rate, data bit, stop bit, parity, flow control and usage. The parameters in DVR should be the same as POS device.

Click Apply to save the settings.

Note: the default usage setting is "***Console***". When you use RS232-Setting you should changed it as "***Transparent channel***" and restart your device.

5. POS Protocol setting

Note: choose connection type as "RS2323", protocol items **Generic** and **AVE** are available

Choose connection type as "TCP Receive ", protocol item only **Generic is** available

- **General POS Setting**

Click the Set icon of **POS Protocol** to set **POS settings**.

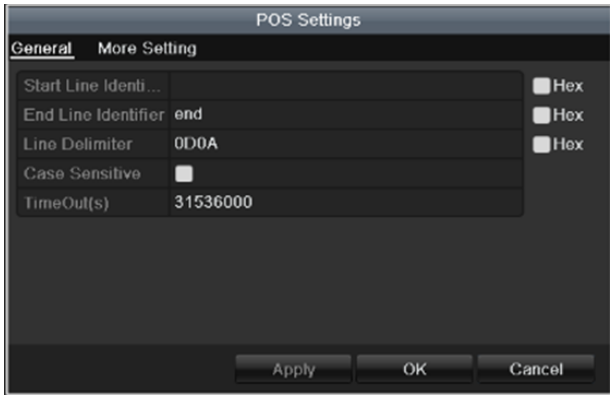


Figure 13. 8 General POS Settings Interface

Note: click "**Hex**" enable "**Hex**" character conversion

Note: "**Start Line Identifier**" if the time value is null, that means POS recording is starting all the time, no beginning command. "**End Line Identifier**" if the item value is null, that means POS recording is running all the time, no ending command.

Note: "**Timeout**": POS network timeout. The POS device is in the connected state over the time period

- **Morel POS Setting**

Click more setting tab of **POS setting** to extra items

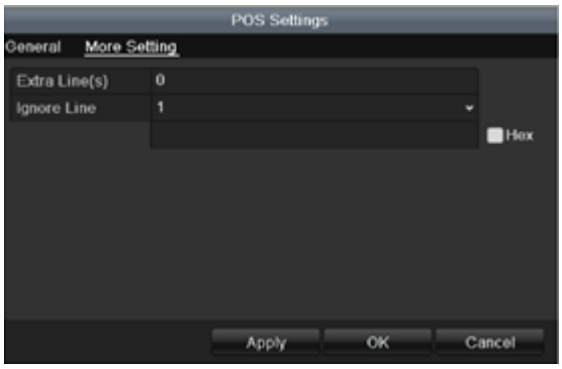


Figure 13. 9 More POS Settings Interface

Note: "Extra Line(s)" means you can get extra character after the "End Line Identifier", the value between 0~ 10.

Note:"Ignore Line": max support is 4 lines. If you ignore specific characters, the POS information within the corresponding characters will not display.

- **AVE POS Setting**

Click the Set icon of **AVE POS Protocol** to set **POS settings**.

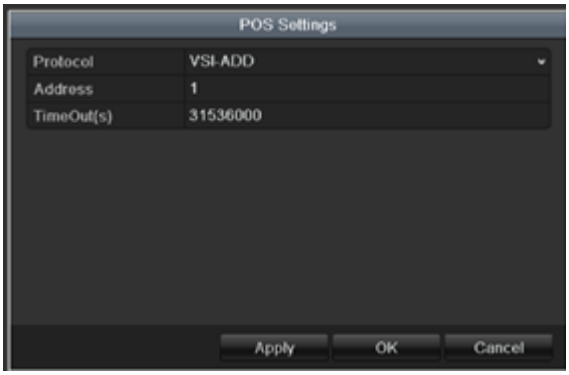


Figure 13. 10 AVE POS Settings Interface

*Note:"*Protocol": VSI-ADD" and"Vnet" available

*Note: "*Address": POS device's AVE master address.

6. Handle setting

Click the icon to make **handle settings** about Trigger channel, Handling and PTZ linking (preset, patrol and pattern)

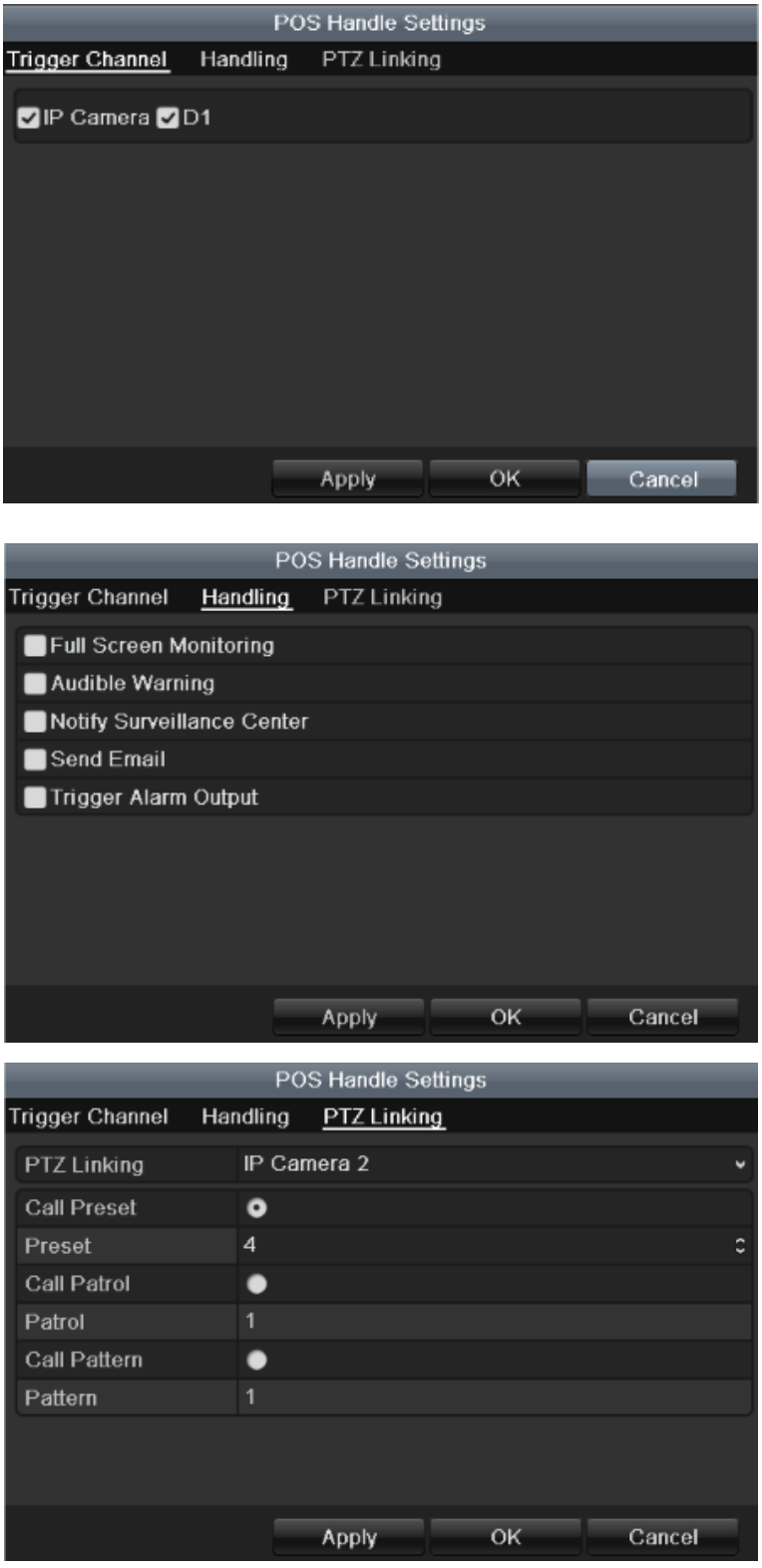


Figure 13. 11 POS Handle Settings Interface

Note: "PTZ Linking" is not available until PTZ device has already connected

13.5 Managing User Accounts

Purpose:

There is a default account in the NVR: *Administrator*. The *Administrator* user name is *admin* and the password is *12345*. The *Administrator* has the permission to add and delete user and configure user parameters.

13.5.1 Adding a User

Steps:

1. Enter the User Management interface.
   Menu >Configuration>User

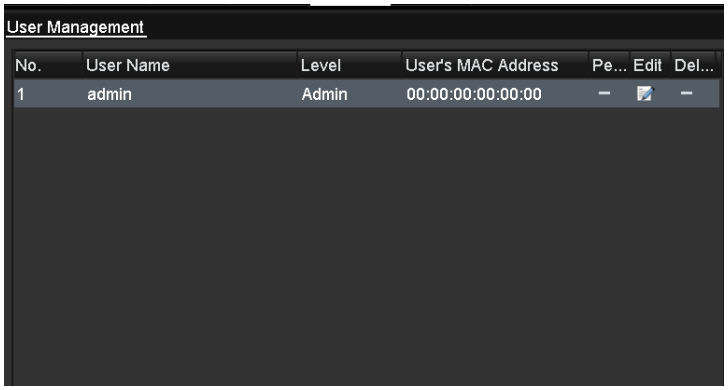


Figure 13. 12 User Management Interface

2. Click the **Add** button to enter the Add User interface.

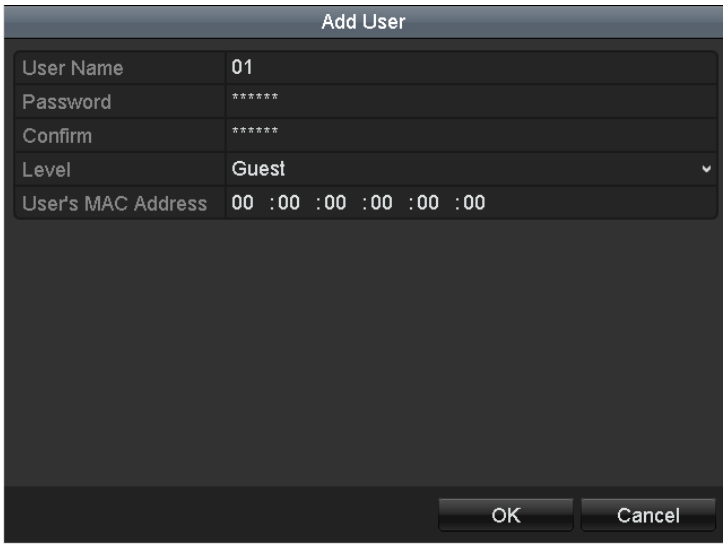


Figure 13. 13 Add User Menu

3. Enter the information for new user, including **User Name**, **Password**, **Level** and **User's MAC Address**.
   Level: Set the user level to Operator or Guest. Different user levels have different operating permission.
   - **Operator:** The *Operator* user level has permission of Two-way Audio in Remote Configuration and

all operating permission in Camera Configuration by default.

- **Guest:** The Guest user has no permission of Two-way Audio in Remote Configuration and only has the local/remote playback in the Camera Configuration by default.

User's MAC Address: The MAC address of the remote PC which logs onto the NVR. If it is configured and enabled, it only allows the remote user with this MAC address to access the NVR.

4. Click the **OK** button to save the settings and go back to the User Management interface. The added new user will be displayed on the list, as shown in Figure 13. 14.

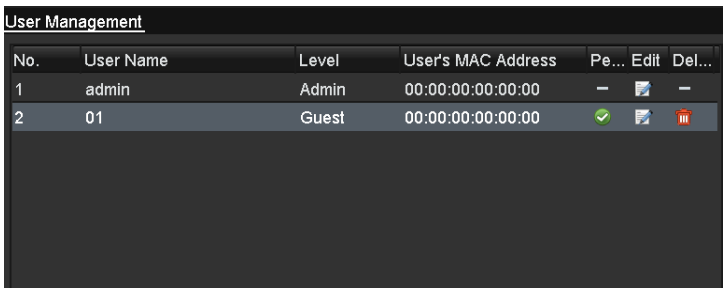


Figure 13. 14 Added User Listed in User Management Interface

5. Select the user from the list and then click the button to enter the Permission settings interface, as shown in Figure 13. 15.

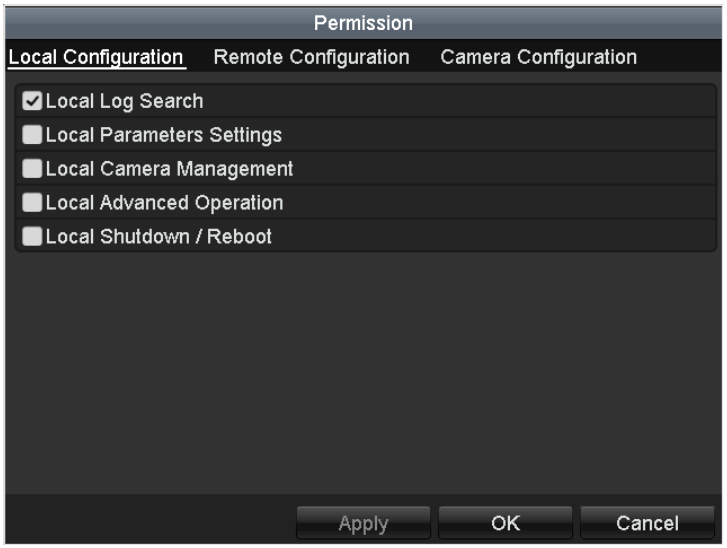


Figure 13. 15 User Permission Settings Interface

6. Set the operating permission of Local Configuration, Remote Configuration and Camera Configuration for the user.

Local Configuration

- Local Log Search: Searching and viewing logs and system information of NVR.
- Local Parameters Settings: Configuring parameters, restoring factory default parameters and importing/exporting configuration files.
- Local Camera Management: The adding, deleting and editing of IP cameras.
- Local Advanced Operation: Operating HDD management (initializing HDD, setting HDD property), upgrading system firmware, clearing I/O alarm output.
- Local Shutdown Reboot: Shutting down or rebooting the NVR.

Remote Configuration

- Remote Log Search: Remotely viewing logs that are saved on the NVR.

- Remote Parameters Settings: Remotely configuring parameters, restoring factory default parameters and importing/exporting configuration files.
- Remote Camera Management: Remote adding, deleting and editing of the IP cameras.
- Remote Serial Port Control: Configuring settings for RS-232 and RS-485 ports.
- Remote Video Output Control: Sending remote button control signal.
- Two-Way Audio: Realizing two-way radio between the remote client and the NVR.
- Remote Alarm Control: Remotely arming (notify alarm and exception message to the remote client) and controlling the alarm output.
- Remote Advanced Operation: Remotely operating HDD management (initializing HDD, setting HDD property), upgrading system firmware, clearing I/O alarm output.
- Remote Shutdown/Reboot: Remotely shutting down or rebooting the NVR.

Camera Configuration

- Remote Live View: Remotely viewing live video of the selected camera (s).
- Local Manual Operation: Locally starting/stopping manual recording, picture capturing and alarm output of the selected camera (s).
- Remote Manual Operation: Remotely starting/stopping manual recording, picture capturing and alarm output of the selected camera (s).
- Local Playback: Locally playing back recorded files of the selected camera (s).
- Remote Playback: Remotely playing back recorded files of the selected camera (s).
- Local PTZ Control: Locally controlling PTZ movement of the selected camera (s).
- Remote PTZ Control: Remotely controlling PTZ movement of the selected camera (s).
- Local Video Export: Locally exporting recorded files of the selected camera (s).

7. Click the **OK** button to save the settings and exit interface.

Note: Only the *admin* user account has the permission of restoring factory default parameters.

13.5.2 Deleting a User

Steps:

1. Enter the User Management interface.
   Menu >Configuration>User
2. Select the user to be deleted from the list, as shown in Figure 13. 16.

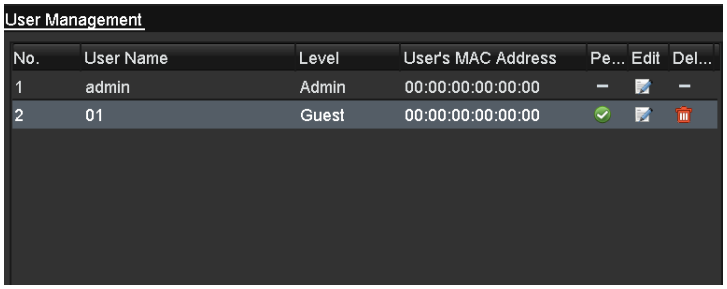


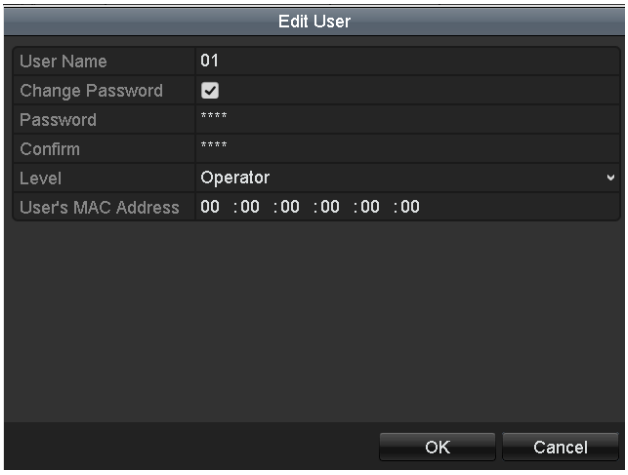
Figure 13. 16 User List

3. Click the icon to delete the selected user.

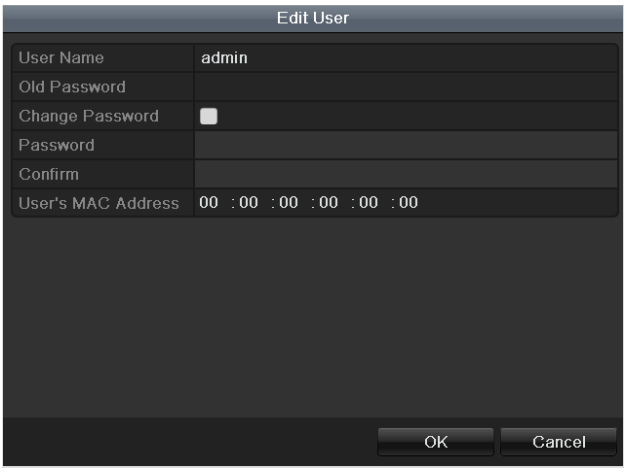
13.5.3 Editing a User

Steps:

1. Enter the User Management interface.
   Menu >Configuration>User
2. Select the user to be edited from the list, as shown in Figure 13. 16.
3. Click the icon to enter the Edit User interface, as shown in Figure 13. 17.
   Note: The admin user can also be edited.



Operator and Guest



Admin

Figure 13. 17 Edit User Interface

4. Edit the corresponding parameters.

- **Operator and Guest**

You can edit the user information, including user name, password, permission level and MAC address. Check the checkbox of **Change Password** if you want to change the password, and input the new one in the text field of **Password** and **Confirm**.

- **Admin**

You are only allowed to edit password and MAC address. Check the checkbox of **Change Password** if you want to change the password, and the input the correct old password, and the new one in the text field

of **Password** and **Confirm**.

5. Click the **OK** button to save the settings and exit the menu.

Appendix

Glossary

- **Dual Stream:** Dual stream is a technology used to record high resolution video locally while transmitting a lower resolution stream over the network. The two streams are generated by the NVR, with the main stream having a maximum resolution of 4CIF and the sub-stream having a maximum resolution of CIF.
- **HDD:** Acronym for Hard Disk Drive. A storage medium which stores digitally encoded data on platters with magnetic surfaces.
- **DHCP:** Dynamic Host Configuration Protocol (DHCP) is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network.
- **HTTP:** Acronym for Hypertext Transfer Protocol. A protocol to transfer hypertext request and information between servers and browsers over a network
- **PPPoE:** PPPoE, Point-to-Point Protocol over Ethernet, is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with ADSL services where individual users connect to the ADSL transceiver (modem) over Ethernet and in plain Metro Ethernet networks.
- **DDNS:** Dynamic DNS is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.
- **Hybrid DVR:** A hybrid DVR is a combination of a DVR and NVR.
- **NTP:** Acronym for Network Time Protocol. A protocol designed to synchronize the clocks of computers over a network.
- **NTSC:** Acronym for National Television System Committee. NTSC is an analog television standard used in such countries as the United States and Japan. Each frame of anNTSC signal contains 525 scan lines at 60Hz.
- **NVR:** Acronym for Network Video Recorder. An NVR can be a PC-based or embedded system used for centralized management and storage for IP cameras, IP Domes and other DVRs.
- **PAL:** Acronym for Phase Alternating Line. PAL is also another video standard used in broadcast televisions systems in large parts of the world. PAL signal contains 625 scan lines at 50Hz.
- **PTZ:** Acronym for Pan, Tilt, Zoom. PTZ cameras are motor driven systems that allow the camera to pan left and right, tilt up and down and zoom in and out.
- **USB:** Acronym for Universal Serial Bus. USB is a plug-and-play serial bus standard to interface devices to a host computer.

FAQ

- **Why does my NVR make a beeping sound after booting?**

The possible reasons for the warning beep on the NVR are as follows:

a) There is no HDD installed in the NVR.

b) The HDD is not initialized.

c) HDD error

To cancel the beeping sound and use the NVR without HDD, enter the Exception Settings interface. For detailed information, see *Chapter Handling Exceptions Alarm.*

- **Why does the NVR seem unresponsive when operating with the IR remote control?**

Please read through the section ***Using the IR Remote Control***, and check:

a) The batteries are installed correctly in the remote, making sure that the polarities of the batteries are not reversed.

b) The batteries are fresh and are not out of power.

c) The remote has not been tampered with.

d) There are no fluorescent lamps in use nearby.

- **Why does the PTZ seem unresponsive?**

If the PTZ seem unresponsive, please check:

a) The RS-485 cable is properly connected.

b) The dome decoder type is correct.

c) The dome decoder speed configuration is correct.

d) The dome decoder address bit configuration is correct.

e) That the main board RS-485 interface is not broken.

- **Why is there no video recorded after setting the motion detection?**

If there are no recorded video after setting the motion detection, please check:

a) The recording schedule is setup correctly by following the steps listed in ***Configuring Motion Detection Record and Capture***.

b) The motion detection area is configured correctly (See ***Setup Motion Detection Alarm***).

c) The channels are being triggered for motion detection (See ***Setup Motion Detection Alarm***).

- **Why doesn't the NVR detect my USB export device for exporting recorded files?**

There's a chance that the NVR and your USB device is not compatible. Please refer to our company's website to view a list of compatible devices.

- **My NVR is in Live View mode and the menu does not show up. It does not respond to the mouse, the front panel, the remote or keyboard.**

Your NVR may be in auxiliary mode. This occurs when the Main/Spot button is pressed on the front panel. To return to the previous mode of operation, press the button again and then press the Enter button on the front panel.

List of Compatible IP Cameras

List of IP Cameras Supported by LV-N99xx Series

Note: **ONVIF compatibility** refers to the camera can be supported both when it uses the ONVIF protocol and its private protocols. **Only ONVIF is supported** refers to the camera can only be supported when it uses the ONVIF protocol.

IPC Manufacturer or Protocol	Model	Version	Max. Resolution	Sub-stream	Audio
ACTI	TCM4301-10D-X-00083	A1D-310-V4.12.09-AC	1280×1024	×	√
	TCM5311-11D-X-00023	A1D-310-V4.12.09-AC	1280×960	×	√
Arecont	AV1305M	65175	1280×1024	√	×
	AV2155	65143	1600×1200	√	×
	AV2815	65220	1920×1080	√	×
	AV3105M	65175	1920×1080	√	×
	AV5105	65175	1920×1080	√	×
Axis	M1114	5.09.1	1024×640	√	×
	M3011(ONVIF compatibility)	5.21	704×576	√	×
	M3014(ONVIF compatibility)	5.21.1	1280×800	√	×
	P3301(ONVIF compatibility)	5.11.2	768×576	√	√
	P3304(ONVIF compatibility)	5.20	1440×900	√	√
	P3343(ONVIF compatibility)	5.20.1	800×600	×	√
	P3344(ONVIF compatibility)	5.20.1	1440×900	√	√
	P5532	5.15	720×576	√	×
	Q7404	5.02	720×576	√	√
Canon	VB-M400	Ver.+1.0.0	1920×960	×	√
	VB-M6000D	Ver.+1.0.0	1920×960	×	×
	VB-M7000F	Ver.+1.0.0	1920×960	×	√
Hikvision	DS-2CD883F-E	V4.0.1 build 120508	2560×1920	√	√
	DS-2CD886BF-E	V4.0.3 build 120913	2560×1920	√	√
	DS-2CD886MF-E	V4.0.3 build 120913	2560×1920	√	√
	DS-2CD8283F-E(I)	V3.0 build110921	2560×1920	√	√
	DS-2CD854F-E	V4.0.1 build 120508	2048×1536	√	√
	DS-2CD754F-E(I)	V4.0.1 build 120508	2048×1536	√	√

	DS-2CD8254F-E(I)	V4.0.1 build 120508	2048×1536	√	√
	DS-2CD754FWD-E	V4.0.1 build 120508	1920×1080	√	√
	DS-2CD753F-E(I)	V4.0.1 build 120508	1600×1200	√	√
	DS-2CD853F-E	V4.0.1 build 120508	1600×1200	√	√
	DS-2CD8153F-E	V4.0.1 build 120508	1600×1200	√	√
	DS-2CD8253F-E(I)	V4.0.1 build 120508	1600×1200	√	√
	DS-2CD7153-E	V4.0.1 build 120508	1600×1200	√	×
	DS-2CD876BF-E	V4.0.3 build 120913	1600×1200	√	√
	DS-2CD876MF-E	V4.0.3 build 120913	1600×1200	√	√
	DS-2CD877BF	V4.0.3 build 120913	1920×1080	√	√
	DS-2CD752MF-E DS-2CD852MF-E DS-2CD852F-E	V2.0 build 110614	1600×1200	√	√
		V2.0 build 110426			
		V2.0 build 100521			
	DS-2CD862MF-E	V2.0 build 110614	1280×960	√	√
		V2.0 build 110426			
		V2.0 build 100521			
	DS-2CD8464F-EI	V4.0.1 build 120508	1280×960	√	√
	DS-2CD863PF/NF-E	V4.0.1 build 120508	1280×960	√	√
	DS-2CD864FWD-E	V4.0.1 build 120508	1280×720	√	√
	DS-2CD763PF/NF-E	V4.0.1 build 120508	1280×960	√	√
	DS-2CD763NF-EI	V4.0.1 build 120508	1280×960	√	√
	DS-2CD2012-I	v4.0.8 build 121109	1280×960	√	×
	DS-2CD7133-E	V4.0.1 build 120508	640×480	√	×
	DS-2CD733F-E(I)	V4.0.1 build 120508	640×480	√	√
	DS-2CD833F-E	V4.0.1 build 120508	640×480	√	√
	DS-2CD8133F-E	V4.0.1 build 120508	640×480	√	√
	DS-2CD802NF DS-2CD812PF DS-2CD832F DS-2CD892PF/NF	V2.0 build 090522	704×576	√	√
		V2.0 build 090715			
		V2.0 build 110301			
	DS-2CD893PF(WD)-E	V4.0.1 build 120508	704×576	√	√
	DS-2CD793PF(WD)-E(I)	V4.0.1 build 120508	704×576	√	√
	DS-2CD793NF(WD)-E(I)	V4.0.1 build 120508	704×576	√	√
	DS-2CD8313PF-E40	V3.0 build 110812	352×288	√	√
	DS-2CD966(B) DS-2CD966-V(B)	V3.1.0 build120423	1360×1024	×	×
	DS-2CD976(B) DS-2CD976-V(B)	V3.1.0 build120423	1600×1200	×	×
	DS-2CD976(C)	V3.1.0 build120423	1600×1200	×	×
	DS-2CD976-V(C)	V3.1.0 build120423	1600×1200	×	×
	DS-2CD977(B)	V3.1 build 120423	1920×1080	×	×

	DS-2CD977(C)				
	DS-2CD986A(B)	V3.1.0 build120423	2448×2048	×	×
	DS-2CD986A(C)	V3.1.0 build120423	2448×2048	×	×
	DS-2CD986C(B)	V2.3.6 build 120401	2560×1920	×	×
	DS-2DF1-572	V4.0.2 build 120813	1280×720	√	√
	DS-2DF1-57A	V4.0.2 build 120813	1280×720	√	√
	DS-2DF1-618H	V2.0.1 build 110520 V3.0.1 build 110811	704×576	√	√
	DS-2DF1-718	V2.0.1 build 110520 V3.0.1 build 110811	704×576	√	√
	DS-2DF1-518	V2.0.1 build 110520 V3.0.1 build 110811	704×576	√	√
	DS-6601HFHI	V1.0.3 build 121024	1920×1080	√	√
	DS-6601HFHI/L	V1.0.3 build 121024	1920×1080	√	√
	DS-6501HCI-SATA DS-6504HCI-SATA DS-6516HCI-SATA	V1.0.1 build 110104	704×576	×	√
	DS-6508HFI-SATA	V1.0.1 build110104	704×576	×	√
	DS-6601HCI DS-6602HCI DS-6604HCI	V1.2.0 build 120215	704×576	×	√
	DS-6601HFI DS-6602HFI DS-6604HFI	V1.2.0 build 120215	704×576	×	√
Panasonic	WV-SF336H	Application:1.06 Image data:1.06	1280×960	√	√
	WV-SP306H	Application:1.34 Image data:1.06	1280×960	√	√
PELCO	D5118	1.8.2-20120327-2.9310-A1.7852	1280×960	√	×
	IXE20DN-AAXVUU2	1.8.2-20120327-2.9081-A1.7852	1920×1080	√	×
	IX30DN-ACFZHB3	1.8.2-20120327-2.9080-A1.7852	2048×1536	√	×
SAMSUNG (ONVIF compatibility)	SNB-5000P	V2.00_110727	1280×1024	√	√
	SNB-7000P	V1.10_110819	2048×1536	×	√
	SNZ-5200	V1.04_110825	1280×1024	√	√
SANYO	VCC-HD2300P	2.03-02(110318-00)	1920×1080	×	×
	VCC-HD2500P	2.02-02(110208-00)	1920×1080	×	√
	VCC-HD4600P	2.03-02(110315-00)	1920×1080	×	√
	VCC-HD5400	2.03-06(110315-00)	1920×1080	×	×
SONY (Only ONVIF is supported)	SNC-CH220	1.50.00	2048×1536	×	×
	SNC-EP580	1.53.00	1920×1080	√	√
	SNC-RH124	1.73.00	1280×720	√	√
Vivotek (ONVIF compatibility)	IP7121	0202a	720×576	×	√
	IP7133	0203a	640×480	×	×
	FD8134	0107a	1280×800	×	×

	IP8161	0104a	1600×1200	√	√
	IP8331	0102a	640×480	×	×
	IP8332	0105b	1280×800	×	×
	VS8102	0200S	704×576	√	√
ZAVIO	D5110	MG.1.6.03P8	1280×1024	√	×
	F3106	M2.1.6.03P8	1280×1024	√	√
	F3110	M2.1.6.01	1280×720	√	×
	F3206	MG.1.6.02c045	1920×1080	√	√
	F531E	LM.1.6.18P10	640×480	√	√